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# UPPER ALAMEDA CREEK BASIN CALIFORNIA URBAN STUDY

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## PLAN OF STUDY

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO  
CORPS OF ENGINEERS  
SAN FRANCISCO, CALIFORNIA



JUNE 1976





# UPPER ALAMEDA CREEK BASIN CALIFORNIA URBAN STUDY;

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*- Alameda co.*

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#### (6) Water Supply and Quality

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### 3. DESCRIPTION OF EXISTING PROBLEMS


PREPARED BY:

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO

CORPS OF ENGINEERS

SAN FRANCISCO, CALIFORNIA

JUNE 1976



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# UPPER ALAMEDA CREEK URBAN STUDY

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## GLOSSARY OF TERMS

The following definitions reflect the meaning of words as they appear in the context of the main body of this Plan of Study report.

**AQUIFER** - A porous, water-bearing geologic formation. Generally restricted to materials capable of yielding an appreciable supply of water.

**BOD** - Biochemical Oxygen Demand. The amount of oxygen necessary for the decomposition of a material by microorganisms.

**CFS** - Cubic Feet Per Second. A unit of measure of liquid past a given point, equal to one cubic foot in one second (also called second-foot).

**CONFLUENCE** - The point at which a tributary converges or join the main stream.

**DEPLETION** - The measure of the amount of water removed from the supply system for a use. Depletion is synonymous with the term consumptive use.

**ENVIRONMENTAL QUALITY** - The management, consideration, preservation, creation, restoration or improvement of the quality of certain natural and cultural resources and ecological systems.

**FLOOD INSURANCE** - Any insurance program designed to provide financial relief for damages incurred due to flooding.

**FLOOD PLAIN** - A belt of ground bordering a river or stream on one or both sides which is inundated when surface flows exceed the capacity of the natural channels.

**FLOOD PROOFING** - Consists of those adjustments, temporary or permanent, to a building and its contents, which are designed to keep water out or reduce effects due to inundation.

**FLOOD WARNING** - Any system of broadcasting an advance warning of possible flooding, to allow time to activate flood proofing devices or the to evacuate a flood-prone area

**FLOODWAY** - The portion of a stream channel and flood plain required to carry and discharge the flood waters of a selected flood occurrence with an increase (less than 1 foot) in flood stage above that of the natural flood plain for the selected flood.

FLOODWAY FRINGE - The portion of a flood plain between the floodway and the flood plain of a selected flood.

GPCPD - Gallons per capita per day.

INFILTRATION - (As applied to sewage collection systems.) The water entering a sewer system, including sewer service connections, from the ground, through such means as (but not limited to), defective pipes, pipe joints, connections and manhole walls.

INFLOW - (As applied to sewage collection systems.) The water discharged into a sewer system, including service connections, from such sources as (but not limited to) roof leaders, cellar, yard and area drains from spring and swampy areas, manhole covers, cross connections from storm sewers and combined sewers, catch basins, storm waters, surface runoff, street wash waters or drainage.

INSTITUTIONAL ANALYSIS - For purposes of this study, determination of the capabilities of existing water resource management institutions in the study area, in order to effectively implement or permit the implementation of, alternative technical proposals developed. Institutions include (but are not limited to), organizations such as planning agencies, municipal water departments, irrigation districts, and all laws, processes, court decisions and relationships applicable to water resources.

NATIONAL ECONOMIC DEVELOPMENT (NED) - Increasing the value of the nation's outputs of goods and services and improving national economic efficiency.

NONPOINT SOURCE - Generalized discharge of waste into a water system which cannot be located as to a specific source (as outlined in Public Law 92 '90). Examples are street runoff, leaching of fertilizers and pesticides from agriculture and animal wastes.

OBERS - Bureau of Economic Analysis, U.S. Department of Commerce and the Economic Research Service, U.S. Department of Agriculture.

OCE Office of the Chief of Engineers, U.S. Army Corps of Engineers.

100-YEAR FLOOD - That flood discharge which has a one percent chance of being equalled or exceeded in a given year.

OVERDRAFT - The amount by which pumpage of ground water exceeds the annual recharge.

POINT SOURCE - Any discernible, confined and discrete conveyance, including (but not limited to) any pipe, ditch, channel, tunnel, conduit, well, fissure, container, rolling stock, or concentrated animal feeding operation, from which pollutants are or may be discharged.



RECHARGE - The water percolating to groundwater table, regardless of source.

RIPARIAN - Living or located along a natural water course (stream or river) or lake.

SECTION 201 The section in the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) that prescribes guidelines for the development and implementation of wastewater treatment facilities planning and construction.

SECTION 208 - The section of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) that prescribes guidelines for the development and implementation of areawide waste treatment management plans.

SECTION 303 The section in the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) that prescribes guidelines for the development and implementation of basin wide waste treatment management plans.

SMSA - Standard Metropolitan Statistical Area.

SPF - Standard Project Flood - The flood that may be expected from the most severe combination of meteorological and hydrologic conditions that are considered reasonably characteristic of the region.

SUSPENDED SOLIDS - Solids which are not in true solution and which can be removed by filtration.

TDS Total dissolved solids. The chemicals in true solution in water, usually expressed in milligrams per liter (mg/l) or parts per million (ppm).





28 July 1976

ERRATA

The following corrections are being made at the request of members of the Management Task Force. These points were raised subsequent to the printing of the final Plan of Study.

1. Pg. 2, third para. Water Supply and Quality will address municipal, industrial and agricultural supply and demand.
2. Pg. 7, second para., second sentence. Delete and replace with: "The State Water Resources Control Board (SWRCB) has placed constraints on the funding which will be allowed a project, dependent upon population projections used. The SWRCB, however, does not place constraints on population levels to be used in planning."
3. Pg. 9, first para., fifth sentence. Delete and replace with: "In this regard, the Corps is aware of resolutions passed by the Livermore and Pleasanton City Councils to control growth."
4. Pg. 23, first para. This paragraph refers to the future operation of the Cross-Valley Pipeline and the Del Valle Water Treatment Plant. These facilities are currently operating.
5. Pg. 24, next-to-last line. Change SWRCB to RWQCB.
6. Pg. 30, fourth para., first line. Should read: "However, the State of California Department of Water Resources has indicated a need..."
7. Pg. 36, first para., last line. Change, "...in the ABAG 208 plan," to "... by the San Francisco Bay Regional Water Quality Control Board."
8. Pg. 45, second para. At the request of Zone 7 this paragraph is replaced with the following: "Availability of water for agricultural purposes will be investigated during the course of the study. All possible sources, such as the State Water Project, urban wastewater, groundwater and surface runoff will be investigated with regard to quantity and quality for agricultural use. Means of conveyance to areas of possible use will be considered. A plan to use available water resources for agricultural purposes will be made which will include costs and benefits for both rural and urban dwellers and environmental quality. If these studies and the market demand are favorable, the institutional requirements for the establishment of irrigation districts by Zone 7 will be investigated. The Bureau of Reclamation of the Department of Interior and the State Department of Water Resources have been contacted and will provide input appropriate to their missions."





9. Pg. 45, fourth para. This paragraph discusses the procedure to conduct the surface runoff analysis in two phases. It should be emphasized that during phase I a progress report describing the extent of surface runoff problems will be prepared and reviewed by the Management Task Force before conceptual solutions are considered. This activity should take place approximately ten (10) months into the study.

10. Pg. 52, sixth para. ABAG's contract with the State has been modified from \$165,000 to \$215,000. The contingency fund has been reduced from \$216,000 to \$165,000.

11. Pg. 57, second para. Delete and replace with: "The State Water Resources Control Board (SWRCB) and the nine regional boards are the principal State agencies with primary responsibility for the coordination and control of water quality throughout the State. Each of the regional boards has jurisdiction in their geographical area which comprises one or more of the twelve (12) hydrologic basins of the State. For each such area, the regional board is the principal action arm of the State to maintain and control water quality."

12. Pg. 60, third para. Study Manager is Scott Sollers (Environmental Resources Planner) 556-4346.

13. Pg. 63, first para. The Army Engineer Liason Committee is now composed of Directors Robert Pearson, Chairman, Archer Futch and Gilbert Marguth.

14. Pg. 66. The Management Task Force member from Zone 7 is Mr. Robert Pearson.

15. Pg. 72. Add "Department of Water Resources" under state agencies for the Water Supply - Water Quality - Wastewater Management Technical Group.





## SECTION I

### JUSTIFICATION

#### A. INTRODUCTION

The purpose of the Plan of Study (POS) is to provide an effective management tool to structure a coordinated approach to a comprehensive urban water resources plan for the Upper Alameda Creek Basin. In addition, the POS is intended to serve as a formal agreement among study participants at all levels as to the roles, conduct and scope of program effort. As a dynamic document, the POS will be subjected to modification where additional information or changes in priorities or desires dictate.

As a practical document it, (1) presents an overview of the existing regional profile of the study area, (2) identifies an initial set of problems and concerns related both directly and indirectly to water resources, (3) outlines study objectives based on identified needs and issues, (4) recognizes previous and ongoing planning and wastewater management efforts in order to supplement and expand upon them and thereby avoid duplication, (5) describes informational and institutional resources, (6) delineates strategy and scope for public participation, and (7) outlines study management in terms of scheduling and resources allocation by the various participating agencies.

The contents of this document have been reviewed and approved by the Environmental Protection Agency (EPA), the State Water Resources Control Board (SWRCB), Zone 7 of the Alameda County Flood Control and Water Conservation District (hereafter referred to as Zone 7), the Livermore-Amador Valley Water Management Agency (LAVWMA) and the Association of Bay Area Governments (ABAG). These agencies constitute the major liaison units for the Study. Copies of letters of cooperation are included in Appendix A.

#### B. AUTHORITY

This study is authorized by House Resolution Adopted 11 April 1974 by the Committee on Public Works of the United States House of Representatives. The Committee requested the Board of Engineers for Rivers and Harbors to review the report of the Chief of Engineers on Alameda Creek, California, published as Senate Document #128, 87th Congress, dated 10 September 1962 (Appendix B). Congressmen Fortney H. Stark and W. Donlon Edwards had requested Congress to authorize the Board to review the Corps' 1962 report. In April 1975, the Board of Supervisors of Alameda County passed a resolution designating Zone 7 as the coordinating agency for the study.

The study, as authorized, is broader than the 1962 Flood Control Study, and is being conducted under the Urban Studies program. This study is broader because it encompasses an enlarged urbanized area since 1962 with new water resources problems such as wastewater management.

### C. OBJECTIVES

The objectives of this Urban Study are to determine whether further improvements in the upper basin of Alameda Creek with respect to flood control, water quality and supply, wastewater management, and other related purposes are advisable. The Corps, through its urban studies program, seeks to provide a range of urban water resource plans that are compatible with comprehensive development goals of the region under study. This range of plans will include one plan which optimizes national economic development and one plan which emphasizes environmental quality. There will be other plans emphasizing various combinations of NED and EQ. It is important that the planning alternatives be presented so that it is clear to the public and the planner what trade-offs are involved in the choice of an alternative, particularly with respect to environmental effects. For example, a planning objective related to flood plain management might be to maximize economic efficiency in providing flood protection for residents in the Upper Alameda Creek Basin. Meeting this objective, however, may accommodate undesired growth patterns that could, in turn, accelerate the air quality problem.

Through its urban studies program, the Corps will complement urban area comprehensive planning by State or local government agencies. Corps planners will not engage in comprehensive urban planning for areas other than water resources. Such planning is the responsibility of State and local governments. Throughout this program the Corps will consider alternatives to solve problems in the following functional areas:

Urban Flood Control and Flood Plain Management,  
Water Supply and Quality,  
Non-Point Wastewater Management,  
Water-Oriented Recreation,  
Fish and Wildlife Preservation and Enhancement.

Solutions to the applicable potential problem areas will be integrated and presented as comprehensive plans that will have the potential to serve as a catalyst for solving other related urban problems. In order to satisfy the stated objectives, the plans must:

- a. Meet the specified needs and concerns of the public within the study area,
- b. Respond to expressed public desires and preferences,



c. Be flexible to accommodate changing economic, social and environmental patterns and changing technologies,

d. Integrate with and be complementary to other urban development and management programs,

e. Be fully coordinated with affected public agencies at all levels,

f. Be developed through an orderly, structured, and open planning process,

g. Be implementable with respect to financial and institutional capabilities and public consensus, and,

h. Be acceptable to concerned Federal, State, and local agencies.

The study will be conducted in accordance with applicable water resources planning laws and policies, including: Sections 201 and 208 of the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500), Section 122 of the 1970 Rivers and Harbors Act (PL 91-611), Section 102 of the 1969 National Environmental Policy Act (PL 91-190), and other pertinent legislation. Care will be taken to utilize ongoing and completed plans as guidelines including LAVWMA's Section 201 Facilities Plan, the SWRCB Water Quality Plan for the San Francisco Basin and the ABAG proposed Section 208 plan.



## SECTION II

### STAGE 1 STUDY RESULTS

#### A. STUDY AREA

##### 1. Identification of Study Area.

a. Geography. The Alameda Creek drainage area is made up of two relatively distinct units, referred to as the lower and upper basins. They are separated by Sunol Ridge. The lower basin begins where Alameda Creek, the principle stream of the drainage basin, enters Niles Canyon, which is a narrow, deep canyon cutting through Sunol Ridge. Alameda Creek flows westward from Niles Canyon across the coastal plain to San Francisco Bay. This lower basin is not included in the study area. The upper basin (Figure 1) is a 622-square mile area of variable terrain in the midst of the Diablo Range of the Coast Range Mountains. The upper basin, or study area, is approximately 45 miles long and 15 miles wide. It lies directly east of southern San Francisco Bay and Santa Clara Valley. Over 80% of the area is either rolling hills such as those that mark the northern boundary, or moderately steep to rugged terrain such as that in the southern two-thirds of the basin. The southern portion of the upper basin has several northerly-running drainage sub-basins typified by steep-sided canyons with intervening ridges that rise to elevations as high as 4,400 feet.

There are five relatively flat valleys within the upper basin that constitute approximately 103 square miles, or one-sixth of the study area. The Livermore, Amador and San Ramon Valleys are three contiguous areas of low relief in the northern part of the basin. Herein lies practically all the urbanization to date and most of the anticipated future urban growth. Approximately 15,607 acres of this area have already been urbanized and 38,680 additional acres therein have been identified as available for urban development.<sup>1/</sup> The Sunol and Vallecitos Valleys are located to the south of these three valleys separated by a minor ridge. These are small contiguous valleys which total approximately 17 square miles. The study area contains portions of Alameda, Contra Costa and Santa Clara Counties.

b. Study Area Boundaries. The Alameda Creek Upper Basin is suitable for the urban study because it is a hydrologic unit allowing integrated study of flood control, water supply and water quality factors. The basin is characterized by a nearby self-contained groundwater system providing for a unique study site in terms of water supply, water quality, and wastewater management. It contains a growing urbanized area, wholly contained in the Livermore, Amador and San Ramon Valleys. The relatively level topography of those valleys could accommodate

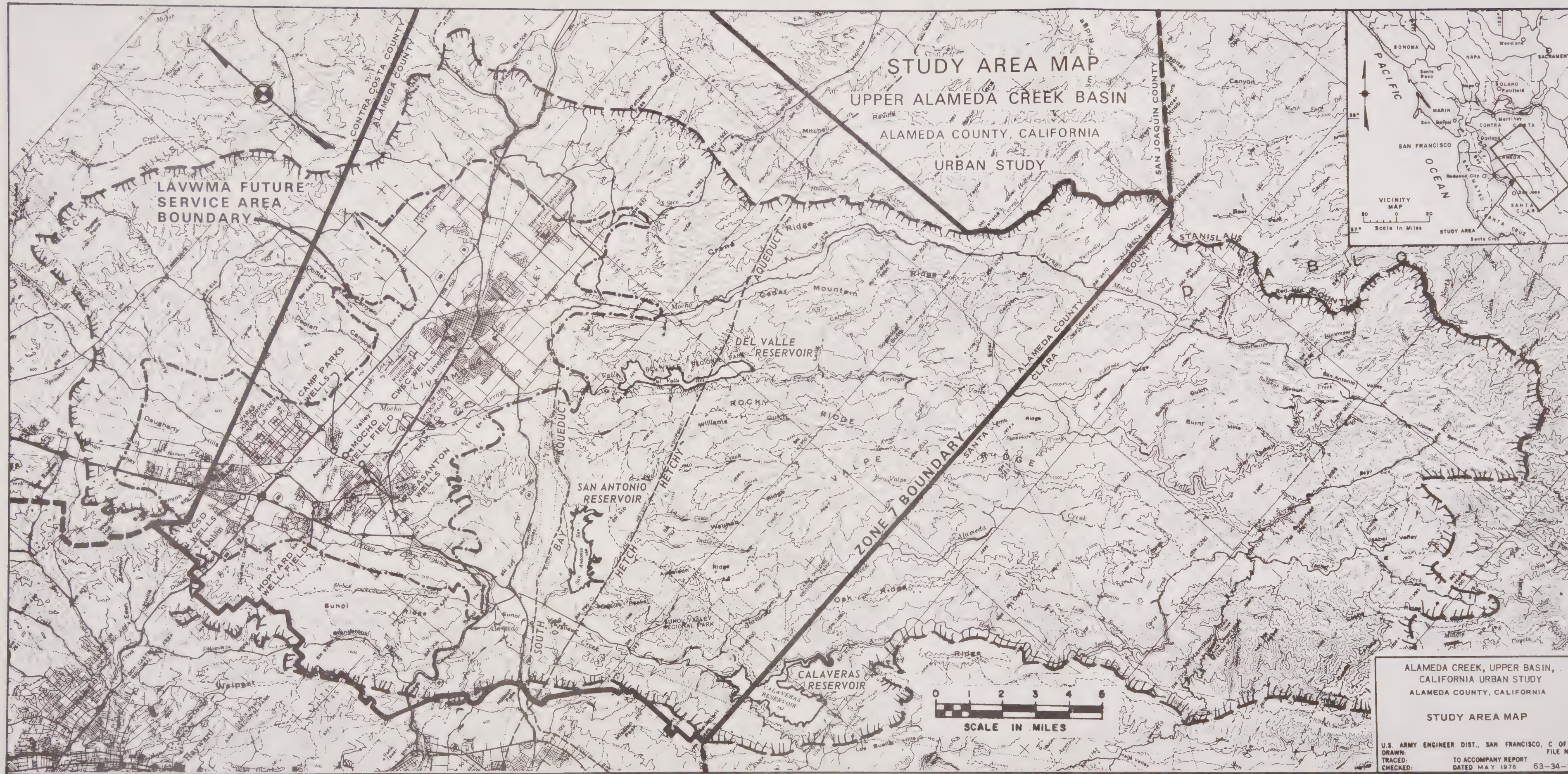
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<sup>1/</sup> Projections of the Regions Future -- Series 2,  
Association of Bay Area Governments, September 1974.















future development. Any additional growth, however, will be heavily influenced by constraining factors such as air quality maintenance and improvement.

Although geographically isolated from other urban areas in the Bay area it is environmentally and economically integrated with those areas. The economic base within the basin is limited and there is considerable commuting to jobs in other East Bay areas, in San Francisco, in Diablo Valley and in the San Jose metropolitan area. The air quality in the basin is affected to some extent by pollutant spillover from other urbanized areas in the Bay Region. However, the geographic isolation of the urban area of this basin from urban areas along the Bay in Alameda County has created a sense of separateness and independence among its residents and on the part of its political bodies.

The Upper Alameda Basin is separated physically, socially and economically from the San Joaquin Valley to the east.

The lower basin, including a portion of Niles Canyon and lower reaches, was not included in the study area because a previous Corps study of the total basin resulted in an authorized project resolving flood control problems in that portion.

## 2. Description of the study Area.

### a. Demography.

#### (1) Population.

The 1970 population in the study area was approximately 85,000. Local estimates placed it at 114,000 in 1975, the base year for the study. Forecasts for future years vary considerably due to differing assumptions on the rate of natural increase and net in-migration to the region and to the state. Various agencies, public and private, have developed population estimates and projections for areas which include some or all of the planning area. Unfortunately there is no one population counting unit which is coterminous with the area.

The 1970 Decennial Census counted population by units as small as city blocks in urbanized areas; and by quite extensive units in undeveloped, sparsely-populated areas. The boundaries for these units seldom match the standard drainage basin boundary, i.e. the ridge line. In the Alameda County portion of the study area, a combination of urban and rural population counting units covers the Livermore-Amador Valley Planning Unit of the County Planning Department. That planning unit is roughly coterminous with Zone 1 or that part of Alameda County east of Sunol Ridge.

In Contra Costa County no combination of population counting units approximate that portion of the study area. The population count for the San Ramon Village "Urban Place," an unincorporated community, was the best approximation. It is wholly contained within that part of the study area and is the only urbanized area therein. In Santa Clara County the population counting unit is much more extensive than that county's part of the planning area and contains only a few hundred persons..

The Livermore-Amador Valley Water Management Agency (LAVWMA) has prepared population estimates and projections for the purpose of performing sensitivity analyses on the direct and indirect impacts of alternative plans to meet present and future requirements of the Regional Water Quality Control Board (RWQCB) and provisions of the Water Quality Control Act Amendments of 1972 (Public Law 92-500). The State Water Resources Control Board (SWRCB) has placed constraints on the population levels LAVWMA shall use for planning the design capacity of sewage treatment systems, etc. The SWRCB has set, for that purpose, the following maximum population levels for 1996 (20 years after completion of the plan):

City of Livermore	63,575
City of Pleasanton	45,229
Valley Community Services District	<u>37,381</u>
Total (LAVWMA)	146,185

The draft Environmental Impact Statement (EIS) on LAVWMA alternative plans has used a range of population forecasts for the year 2000, of 157,000 to 190,000. The 190,000 population is their maximum estimate; and the 157,000 level is based on the State Department of Finance Series E-0 population projections -- a replacement level population growth rate described below. Final population forecasts for planning design capacity will be worked out before submission of the Final EIS. LAVWMA, which is a joint powers agency composed of the cities of Livermore and Pleasanton and the Valley Community Services District, has a service area which is somewhat smaller than the study area. Thus, their population count for 1970 will not be the same as that derived from the census counting units described for the Decennial Census, nor will their current estimates and forecasts be comparable to those for the study area.

The "Water Quality Management Plan for the Alameda Creek Watershed Above Niles," prepared in 1972 for the Cities of Livermore and Pleasanton, the Valley Community Services District, and Zone 7 contains population forecasts for an area that is co-terminous with the study area.

The Alameda County and Contra Costa County Planning Departments prepare periodic estimates of population and population forecasts by areal units, combinations of which approximate their respective portions of the study area.

The Association of Bay Area Governments (ABAG) has made population projections through the year 2000 for the nine-county Bay area and for smaller areal units. These units are as large as counties and as small as traffic zones. Traffic zones have an average population size of 16,000. They are geographically small where population is dense and larger in sparsely populated areas. ABAG uses three series of population projections identified as GRO-SOUTH, GRO-NORTH and LO-SOUTH. Each is based on a different set of assumptions. The GRO-SOUTH assumes that growth will continue to occur more rapidly in the southern part of the Bay area; and that the rate of natural increase of the resident population and the net in-migration to the region will be comparable to the State's Series D-150 population projections. GRO-NORTH is based on the same regional growth assumptions except that growth will shift to the north counties. LO-SOUTH assumes that growth will continue to favor the southern portion of the Bay Area and that the rate of natural increase and net in-migration will be comparable to the State's Series E-0 population projections which assume replacement level fertility rates and no increase in state population due to in-migration.

ABAG will embark on an extensive population forecasting effort as a part of its Section 208 Areawide Wastewater Management Planning. These projections will constitute the primary data source for this Urban Study.

The California State Department of Finance prepares periodic estimates and forecasts of population for each of the 58 California counties. In California, there exists an informal agreement between the State and the Corps of Engineers, Bureau of Reclamation and Soil Conservation Service which requires that water resources planning agencies include the State Department of Finance Series D-100 projections among the forecasts considered in water resource planning. The D-100 Series assumes a fertility rate of 2.5 births per woman and a net in-migration to the state of 100,000 persons per year.

The United States Water Resources Council (WRC), an independent executive agency of the U.S. Government, has promulgated "principles and standards for planning water and related land resources" to be followed by all Federal water resource planning agencies. The OBERS and OBERS-Series E projections, prepared for WRC by the U.S. Department of Commerce and the U.S. Department of Agriculture, will therefore also be considered for comparison purposes. The OBERS-Series-E projections are based on the Bureau's Series-E projections which assume the attainment, by the year 2005, of a fertility rate of 2.1 births per woman. That rate would see births equal to deaths by the year 2037, with increases due only to net migration from abroad.



Table 1 shows estimates and forecasts from the sources listed above. Differences therein will be resolved during Stage 2. Forecasts agreed upon by all participants in the study will be used. It is important to emphasize that the Urban Study will be responsive to local needs and desires. In this regard, the Corps is aware of "No-growth" resolutions passed by the Livermore and Pleasanton City Councils. The Urban Study will present alternatives that accommodate various growth projections and locations.

## (2) Socio-Economic Profile.

The racial composition of the study area population as shown by the 1970 Decennial Census is 97% white, one percent black, and two percent other races. The Spanish-American ethnic group accounted for nine percent of the population. The population is young -- one-half below 24.9 years of age.

The civilian labor force constitutes 59.6% of all persons 14 years of age and older. Four and one-half percent of the labor force was unemployed on the date the census was taken (1 April 1970). National unemployment then was 4.6 percent. Median family income in the area (for the calendar year 1969) was \$13,142. Some 4.3 percent of the families received less than poverty level income (\$1800 to \$8400 per year depending on family size); while 36.8 percent received more than \$15,000. Of poverty families, 41.9 percent were headed by women. The number of persons living in poverty were 5.2 percent of all persons. The educational attainment of the adult population compares favorably with that of the Bay Area-wide adult population. Of all persons aged 25 or older, 77% were high-school graduates and 18% were college graduates. Of the nine-county Bay Area population aged 25 or older, 66.4 percent were high-school graduates and 16.8 percent college graduates.

Recent growth in the study area is reflected by the fact that only 31 percent of the persons 5 years and older in 1970 occupied the same residence in 1965. Almost 30 percent came from other counties in the state or the nation between 1965 and 1970. Less than two percent of the population lives in group quarters such as rooming houses, military barracks, dormitories or penal institutions. The homogeneity of the population in terms of household characteristics is reflected by the fact that 71 percent of the families have children under 18 years of age. Single person households or households with unrelated individuals constitute only nine percent of the total households. Table 2 shows how the occupations are represented in the labor force.

TABLE 1

POPULATION ESTIMATES AND FORECASTS  
FOR ALAMEDA CREEK, UPPER BASIN, CALIFORNIA 1/

	<u>1970</u>			
Decennial Census				
Livermore	37,700			
Pleasanton	18,300			
Dublin	13,700			
Balance of Alameda Co. Part	8,000			
San Ramon Village	7,400 <u>2/</u>			
Balance of Contra Costa Co. Part	1,600			
Santa Clara Co. Part	-			
Total Study Area	<u>86,700</u>			
	<u>1975</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
LAVWMA Low	-	130,000	170,000	190,000
LAVWMA E-O <u>3/</u>	-	123,000	140,000	157,000
Water Quality Management Plan <u>4/</u>	-	185,000	305,000	390,000
County Planning Departments				
Alameda Co. Part <u>5/</u>	103,000	120,000	157,000	205,000
Contra Costa Co. Part	11,400	14,200	31,700	-
Total Study Area	114,400	134,200	188,700	-
ABAG <u>6/</u>				
GRO-SOUTH (D-150)	-	133,600	208,100	297,200
GRO-NORTH (D-150)	-	128,400	185,700	253,400
LO-SOUTH (E-O)	-	117,600	153,800	187,000
California State Department of Finance <u>7/</u>				
D-100	-	95,200	107,700	119,900
OBERS <u>8/</u>	-	107,000	131,400	155,400
OBERS - SERIES-E <u>8/</u>	-	99,800	113,800	125,400

## FOOTNOTES:

- 1/ Rounded to nearest 100.
- 2/ Adjusted by 3,200 persons according to Contra Costa Co. Plng. Dept.
- 3/ Taken from Figure 4-8 of the Draft EIS, Livermore-Amador Valley Wastewater Management Program. These projections are consistent with SWRCB constraints.
- 4/ Projections for the "Water Quality Management Plan for the Alameda Creek Watershed Above Niles," September 1972, by Brown & Caldwell Consulting Engineers.
- 5/ "B" Series projection by Alameda Co. Plng. Dept. - suggested for "planning purposes."
- 6/ Study Area's pro-rata share of combination of ABAG Traffic Zones 155, 157, 222-225, and 251.
- 7/ Study Area's pro-rate share of the sum of Alameda Co. and Contra Costa Co. projections.
- 8/ Study Area's pro-rata share of OBERS Water Resources Plng Area No. 1806.

TABLE 2

## EMPLOYED PERSONS BY OCCUPATION

	<u>Percent</u>
Professional and Technical	25.7
Managerial and Administrative	11.1
Sales Workers	8.2
Clerical Workers	15.9
Craftsmen and Foremen	14.3
Other Skilled Workers	8.7
Service Workers	11.4
Laborers (non-farm)	3.7
Other	<u>1.0</u>
	100.0

The largest number of jobs for workers who lived in the study area occurred in the following four major industry divisions:

Services	Manufacturing
Retail	Construction

TABLE 3

## EMPLOYMENT BY INDUSTRY

	<u>Employees</u>	<u>Percent</u>
Agriculture, Forestry and Fisheries	454	1.6
Mining	254	0.9
Construction	1,984	7.1
Manufacturing		
Durable Goods	2,633	9.4
Non-durable Goods	1,378	4.9
Transportation, Communications and		
Public Utilities	1,901	6.8
Wholesale and Retail Trade	5,398	19.2
Finance, Insurance and Real Estate	1,160	4.1
Services	11,251	40.0
Public Administration	<u>1,685</u>	<u>6.0</u>
Total Employed, ALL Industries	28,098	100.0



The employment referred to above deals with employed persons who reside in the study area. Their jobs may be within or outside the study area. Economic activity within the study area consists of light industry, extractive industry, scientific research and development of agriculture. The light industry has characteristically high architectural and site development standards. Included are publishing, electronics, and automotive distribution. The Lawrence-Livermore Laboratory and General Electric Vallecitos Atomic Laboratory are engaged in atomic research. The Kaiser Research Center conducts research in metals and chemicals manufacturing. The Bay Area's major reserves of sand, gravel and aggregates are located in the study area. Four operators in the area produce seven to eight million tons per year. That industry is a major element of the economy of the study area and is critical to the Bay Area construction industry.

### (3) Land Use.

Land use within the basin is still predominantly rural and undeveloped -- over 80 percent is rugged to rolling, hilly terrain. Fewer than 500 persons occupy this territory. Until 1960, the valley areas were used principally for agriculture. Two small communities, Livermore and Pleasanton, served the area. Rapid urbanization began soon thereafter and the Livermore, Amador and San Ramon Valleys are now principally urbanized, although there are still large undeveloped sections. The valley areas cover one-sixth of the study area or approximately 66,000 acres. Each of the cities of Livermore and Pleasanton has an adopted general plan showing proposed future land use in the incorporated territory and in the sphere-of-influence portion of unincorporated territory. Alameda County, Contra Costa County, and Santa Clara County each has an adopted general plan covering the unincorporated territory within their boundaries. The Association of Bay Area Governments has prepared forecasts of urban land use. Their "Planning District" No. 26 includes the Alameda County portion of the study area. Planning District No. 36 covers most of the urbanized and developable corridor along Highway I-680 in the Contra Costa County portion of the study area. Some territory outside the study area is included in the ABAG PD No. 26. The PD No. 36 does not include some territory within the study area. However in both cases the land involved is mountainous or hilly. So it is reasonable to assume that the urbanized acres listed fall within the study area.

TABLE 4  
FORECASTS OF URBAN LAND USE  
ALAMEDA CREEK UPPER BASIN  
(Acres)

ABAG Planning Districts	1980		1990		2000	
	LO	GRO	LO	GRO	LO	GRO
	<u>SOUTH</u>	<u>SOUTH</u>	<u>SOUTH</u>	<u>SOUTH</u>	<u>SOUTH</u>	<u>SOUTH</u>
#26	12,069	12,533	13,961	15,921	15,792	19,661
#36	7,332	7,648	8,869	10,348	10,247	12,985
TOTAL	19,401	20,181	22,830	26,269	26,039	32,646

## b. Resources.

(1) Climate. The climate of the study area is that of a typical central California inland valley. It is characterized by warm, dry summers and generally mild, moist winters. Summer temperatures average from 65 degrees to 75 degrees with highest recorded temperatures in the range of 105 degrees to 113 degrees. Winter temperatures are mild with from 15 to 30 days of light to heavy frost. Average January minimum temperatures vary from 35 degrees to 40 degrees with a lowest recorded temperature of nine degrees at the Lick Observatory. Eighty percent of the annual rainfall occurs from November through March. Mean annual precipitation is 18 to 21 inches on the eastern slopes of the valley, 23 to 25 inches on the western slopes. Dominant winds are from the west and northwest during spring, summer, and fall. During the winter, winds blow equally from all directions. For more than 50 percent of the time, wind speeds are less than 6 miles per hour and exceed 12 miles per hour for only ten percent of the time.

Monthly climatological data for the Livermore-Amador Valley are presented in Table 5.

(2) Geology. The Livermore and Amador Valleys make up one of several sub-basins in the Alameda Creek Upper Basin. This sub-basin has a length of seven miles. Its elevations range between 320 feet mean sea level in the west to 450 feet mean sea level in the east. It is underlain by coarse sandy gravels to depths of approximately 4,000 feet. The lower 3,300 to 3,800 feet of these deposits are the Livermore-Tassajara gravels of Plio-Pleistocene Age. The gravels contain clay strata or lenses that serve as capping for artesian zones. The upper 200 to 700 feet of the materials are clay, silt, sand, and gravel of Quaternary Age. These latter sediments are coarser on the south of the sub-basin than they are on the north. The north side is blanketed with sand, silt, and clay. In the vicinity of Pleasanton, several impervious clay strata have created a pressure area for artesian water. The southern sub-basin gravels are worked commercially for concrete aggregate.

The Valleys are seismically active. Movement has been recorded along the Calaveras-Sunol fault within historic time and a recent scarp in the alluvium northeast of Livermore indicates movement in that locality. Earthquakes originating within the active fault systems of the San Francisco Bay area are felt within the basin and may subject the area to vibrations of damaging intensity.

(3) Vegetation. Native vegetation consists principally of mixed pine, scrub oak and chaparral on the hills and mountainous areas intermingled with native grasses and some sagebrush. There is little timber of commercial value. Dense growths of willows are adjacent to many stream channels, particularly in the canyon sections. A few introduced cottonwood trees grow along some streams. Native vegetation in the valleys consists principally of sagebrush, chaparral and grass. Most of this cover has been displaced as a result of the lands being cleared for cultivation and pasture.

TABLE 5

## CLIMATOLOGICAL DATA FOR THE LIVERMORE-AMADOR VALLEY

Month	Air Temperature, (Degree F°)				Precipitation <sup>1/</sup> (inches)			
	Average	Departure From Normal	Extreme		Long Term Aves. 1931-52	Total Precipi- tation 1973	Maximum Day 1973	1973 Evaporation
	Avg.		H.	L.				
January	45.3	-0.8	64	20	3.00	5.00	1.15	1.05
February	50.8	+1.8	*	*	2.71	3.83	*	1.46
March	49.4	-3.0	*	*	2.12	2.63	*	3.39
April	58.2	+1.3	87	34	1.01	0.29	0.24	7.02
May	65.2	+3.3	99	38	0.41	0.03	0.03	10.41
June	70.5	+3.5	108	44	0.08	Trace	Trace	11.85
July	70.9	-0.8	108	43	0.01	0	0	12.67
August	69.6	-1.2	99	44	0.01	0	0	11.29
September	67.3	-2.2	97	43	0.05	0.08	0.08	8.01
October	61.6	-1.0	89	38	0.07	2.08	1.02	5.00
November	51.7	-1.7	78	29	1.63	3.71	1.01	1.87
December	48.3	+0.8	64	31	3.01	3.80	1.13	0.93
Year	59.1				21.95			74.95

<sup>1/</sup> U.S. Department of Commerce, National Oceanic and Atmospheric Administration,  
Environmental Data Service, California Annual Summary 1973.

\* No Data Available.



(4) Natural Resources. The most important resources are arable land; land suitable for development as residential, commercial or industrial property; water for irrigation, and domestic and industrial use; and air quality. The major reserves of sand, gravel and other aggregates for the San Francisco Bay metropolitan area are located in the Livermore Valley (Figure 2a). Some mountainous sections are valuable for grazing livestock. There are reports of deposits of chromium, manganese, coal, and sand suitable for manufacturing glass. However, these resources have not been developed. The gravel deposits, which underlie the valley sections of the basin, constitute an underground reservoir for water. During much of the year, they are the only natural sources of water for irrigation, which is essential for farming in this area.

(5) Drainage. The principle stream within the basin is the Alameda Creek, with a drainage area of 622 square miles at Sunol. From its headwaters near Mt. Hamilton, the creek flows northwesterly for about 20 miles where it is joined by Calaveras and San Antonio Creeks. Calaveras and San Antonio Creeks have reservoirs maintained by the San Francisco Water Department. The Calaveras Reservoir capacity is 96,851 acre-feet and San Antonio, 50,000 acre-feet. Calaveras and San Antonio Creeks join Alameda Creek a short distance upstream from the town of Sunol. Calaveras Reservoir was designed and is used to collect local runoff only, while San Antonio reservoir was designed to hold local runoff transfers from Calaveras and imported water from the Sierra Nevada Mountains via the Hetch Hetchy aqueduct. Arroyo Valle is the second largest tributary stream in the basin with a drainage area of 173 square miles. The headwaters of Arroyo Valle originate in the San Antonio Valley. Runoff from this valley flows northwest to the Del Valle Reservoir, with a storage capacity of 77,000 acre-feet. Releases from this reservoir flow out into the Livermore Valley and eventually flow into Arroyo de la Laguna near Interstate Highway 680 and Bernal Avenue, west of Pleasanton (Figure 2b).

The major tributary in the study area is Arroyo de la Laguna. Its tributary area of 426 square miles, extends south to the highlands surrounding San Antonio Valley in Santa Clara County and north to the Black Hills in Contra Costa County. The Arroyo de la Laguna drainage area also extends north and east to include the area of Dublin, San Ramon and Livermore. Streams tributary to Arroyo de la Laguna are the Arroyo Valle, Arroyo Mocho, Arroyo Seco, Arroyo Las Positas, and Altamont, Cayetano, Collier, Tassajara, San Ramon, and Alamo Creeks. The Arroyo de la Laguna flows southeasterly to its confluence with Alameda Creek near Sunol. The drainage areas of streams in the study area are given in the following table.



**FIGURE 2a. Gravel Mining Operations in the Livermore Valley, California. Pleasanton in Background.**



**FIGURE 2b. Bridge marks confluence of Arroyo Valle (top), Alamo Canal (left), and Arroyo De La Laguna (right). Pleasanton in Background.**





TABLE 6

## DRAINAGE AREAS OF MAJOR STREAMS

<u>Stream and Location</u>	<u>Drainage Area (Square Miles)</u>
San Ramon Creek at mouth	21
Alamo Creek at Highway US 580	39
Arroyo las Positas at mouth	78
Tassajara Creek at Highway US 580	27
Arroyo Mocho at mouth	170
Arroyo Valle at damsite	149
Arroyo Valle at mouth	173
Arroyo de la Laguna at mouth	426
Calaveras Creek at damsite	98
San Antonio Creek at mouth	40
Alameda Creek above Arroyo de la Laguna	196
Alameda Creek at Sunol	622

Arroyo de la Laguna, as its name implies, was originally the outlet of a lake situated in the low area at the western end of Amador Valley. A remnant of this lake, surrounded by swampy land, persisted until the early 1900's when the Arroyo was deepened, stream channels were constructed and local groundwater levels were drawn down. Flooding of this area northward to Interstate Highway 580, still occurred in extremely wet years until new and improved channels were completed in the mid-1960's.

Del Valle Reservoir, located on Arroyo Valle south of Livermore, began operation in 1969 to augment the State Water Project South Bay Aqueduct System. Regulation of aqueduct flows is the primary purpose of Del Valle Reservoir's 77,000 acre-feet storage capacity. Other uses include recreation, storage for flood control, and conservation of upstream runoff.

Surface water flows in the Alameda Creek System have several sources. These include: (1) controlled releases from Del Valle Reservoir and from the Altamont, Mocho, Del Valle and Vallecitos turn-outs of the South Bay Aqueduct, (2) varying amounts of percolation within the Livermore Valley, (3) varying amounts of wastewater releases to surface streams, and (4) varying amounts of storm water runoff. During dry weather, the flows in the Alameda Creek and its tributaries consist primarily of imported water releases from the South Bay Aqueduct and Del Valle Reservoir and domestic wastewater discharges by the City of Livermore and the Valley Community Services District. During wet weather, natural runoff is the predominant source of stream flows. Arroyo Valle, the second major tributary to the Alameda Creek System has contributed over 65 percent of the inflowing waters to the basin system during the past two decades.

Approximately 16.5 percent of the normal annual runoff carried by Alameda Creek is recharged to the groundwater in the vicinity of Niles according to the information developed by the State Department of Water Resources. Peak flows pass the natural recharge areas too rapidly to percolate and are not diverted to the Alameda County Water District recharge pits due to high turbidities often associated with these flows. The runoff is used to recharge the groundwater reservoir.

(6) Water Supply and Quality. Water supply for the Livermore-Amador Valley is basically from groundwater and imported water. Very little of the surface water entering the area is used directly. Surface water either enters the groundwater supply or leaves the area via Alameda Creek. Current water demand in the valley amounts to about 35,000 acre-feet annually. This water is used principally for municipal, agricultural, industrial (mainly gravel-quarry washing), and institutional water supply. Municipal requirements constitute a little more than one-half of total water requirements in the basin. (See Table 7. Present Water Use).

TABLE 7

SUMMARY OF PRESENT WATER USE\*  
(Fiscal Year 1973-74)

Item	Quantity (Acre-Ft/Year)
Municipal Requirements	
City of Livermore - (Zone 7)	1,300
California Water Service Company	6,800
City of Pleasanton	5,800
VCSD	2,485
EBMUD (Contra Costa County)	1,500
Sunol Area	500
Agricultural Requirements	10,000
Industrial (Gravel Quarry Use)	5,000
Institutional	<u>1,432</u>
Total	34,817

\*From Carollo Project Report, 1974.

Domestic water is distributed by four agencies in the area. These agencies are the City of Livermore, California Water Service Company, the City of Pleasanton, and the Valley Community Services District. In addition to these four water distribution agencies, there is one wholesale water supply agency, the Alameda County Flood Control and Water Conservation District-Zone 7. This agency is authorized to contract with State and local agencies for the supply and

distribution of water in the Livermore-Amador Valley and is also responsible for overall water resources management. Zone 7 furnishes imported water to the above distribution agencies to supplement local well supplies in addition to furnishing water directly to the Veterans Administration Hospital, several ranches, wineries and golf courses.

Zone 7 contracted with the State for imported water via the South Bay Aqueduct in the early 1960's. The current withdrawal from the aqueduct is about 15,000 acre-feet per year. This amounts to about forty percent of the total water used in the area.

The current water demand is expected to increase to as much as 52,500 acre-feet per year by the year 2000. Recent re-analysis of water use by the State Department of Water Resources suggests a leveling-off of per capita consumption rates.\* However, projections developed by Zone 7 forecast an increase from 163 gallons per capita per day (GPCD) in 1974 to 190 gallons per capita per day in 2000. Based on population estimates and historic trends in domestic water consumption, the total water needs will increase. Projected water demands for the study area are presented in Table 8.

An increase in residential growth will be the contributing factor to increased demand. Further urbanization of the study area will utilize agricultural land for its purposes and reduce the demand of agricultural uses.

Reappraisal of unit water demands and projections of valley growth by Zone 7 have increased the projected annual use of imported water from the State to the following:

1975:	16,000 acre-feet
1980:	22,000 acre-feet
1985:	27,000 acre-feet
1990:	32,000 acre-feet
1997:	46,000 acre-feet (Maximum entitlement)

A substantial portion of the imported water is being and will continue to be used to recharge the groundwater levels. An inventory of water recharge-to-withdrawal rates from the Livermore-Amador Valley groundwater basin was prepared by the California Department of Water Resources. Analysis of the results of this survey indicates that over a nine year period from 1961 to 1970 the average input was 23,942 acre-feet per year; average withdrawal was 19,441 acre-feet per year; thus, an average net recharge of 4,501 acre-feet per year was added to basin storage. Current estimates of safe yield based on natural supply, surface water and underground water supply is about 27,000 acre-feet per year. In an endeavor to control groundwater levels and to prevent overdraft of the basin, Zone 7 has placed limits on the amount of water which may be pumped from groundwater supplies by the municipal water agencies.

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\* State DWR Bulletin No. 166-2, October, 1975.



TABLE 8  
CURRENT AND PROJECTED WATER DEMAND 1/

Item	1973-74	1980	1990	2000
Per Capita Consumption, GPCD	163	170 <u>2/</u>	180 <u>2/</u>	190 <u>2/</u>
Average Daily Demand-Municipal/Industrial, MGD <sup>3/</sup>				
Livermore				
E-O	8.07	9.22	10.94	12.54
LAVWMA-LOW	10.55	12.00	14.29	16.36
Pleasanton-Contra Costa Co.				
E-O	8.77	10.37	12.83	15.12
LAVWMA-LOW	<u>11.51</u>	<u>13.56</u>	<u>16.74</u>	<u>19.74</u>
Total				
E-O	16.84	19.59	23.77	27.66
LAVWMA-LOW	22.06	25.56	31.03	36.10
Agricultural Demand, MGD	8.92	6.25	4.46	2.68
Quarry and Other Demand, MGD	<u>5.74</u>	<u>6.25</u>	<u>7.14</u>	<u>8.03</u>
Total Water Demand, MGD				
E-O	31.50	32.09	35.37	38.37
LAVWMA-LOW	36.72	38.06	42.63	46.81
Total Water Demand in Acre-Feet				
E-O	35,300	36,000	39,600	43,000
LAVWMA-LOW	41,150	42,650	47,800	52,500

1/ From Carollo Project Report, 1974.

2/ Zone 7 Projections.

3/ Million gallons per day.

Additional imported water from East Bay Municipal Utility District's (EBMUD) Mokelumne River system is transported to the northern portion of the basin, to areas within Contra Costa County. An average of 983 million gallons per year are treated at the EBMUD Walnut Creek treatment plant and delivered to the area from the Danville pumping station.

The principal water service agency in the Sunol Valley is the San Francisco Water Department which furnishes approximately 682 million gallons per year from the Calaveras-San Antonio Reservoir system to users in that area. In addition, the San Francisco Water Department maintains a well near Pleasanton and small amounts of water (98 million gallons per year) are sold by the Department to local agricultural irrigation interests. The remainder of the Sunol Valley is furnished water from privately-owned wells.

TABLE 9  
WATER SUPPLY SOURCES 1/  
(Million Gallons Per Year)

	1971	1972	1973	1974	1975
EBMUD	818	978	988	979	1,153
ZONE 7					
Local	1,403	1,639	1,747	1,715	805
Imported Via Aqueduct	1,499	1,742	1,867	2,111	3,071
Pleasanton	695	694	744	794	745
VCSD	210	210	200	211	210
Calif. Water Service Co.	839	823	816	855	906
Veterans Admin. Hospital	12	8	5	-	-
Camp Parks	262	253	239	260	264
San Francisco Water Dept.					
Imported <u>2/</u>	635	653	562	1,048	799
Local <u>3/</u>	343	445	252	423	215
TOTAL	6,716	7,445	6,432	8,396	8,168

1/ Does not include quantities pumped by individual farms, etc.

2/ Imported via Hetch Hetchy & sold to Basin users - does not include imported water passing through the Basin.

3/ Sales to Basin users from runoff within Basin.

The quality of water used in the Livermore-Amador Valley varies considerably depending on the source. The water supply in some cases is a blend of two or more sources so the quality will vary depending on the amount of each source. In general, imported waters have a better quality than groundwater in the area. Table 10 shows quality of water from various sources within the area including wells and the three sources of imported water.

The Livermore area receives water from the existing Zone 7 Water Treatment Plant which treats and purifies imported water from the South Bay Aqueduct. The treated, imported water is a relatively soft and good quality water having an annual average hardness, expressed as  $\text{CaCO}_3$ , of approximately 110 milligrams per liter. The Pleasanton-Dublin area receives water from the underground water basin. The pumped water is a relatively hard and less desirable quality water, having an annual average hardness of approximately 390 milligrams per liter.

In general, water with hardness below 120 milligrams per liter is considered very good quality water for domestic use; water with hardness between 120 and 200 milligrams per liter is good quality water which usually does not require softening; water with hardness above 200 milligrams per liter is considered very hard as soap usage and scale build-up in plumbing and fixtures becomes excessive. The current water quality requires significant water softener usage in the valley.

TABLE 10

AVERAGE WATER QUALITY 1973-1974\*  
(mg/l)

Constituent	VCSD Wells	Pleasanton Wells	Zone 7 Wells	Zone 7 Import	CWSC Wells	EBMUD Import	SFWD Surface	SFWD Ground	SFWD Import
Total Dissolved									
Solids, TDS	539	328	515	205	411	35	175	250	15
Hardness as CaCO <sub>3</sub>	94	255	342	99	307	20	120	250	2.8
Alkalinity as									
CaCO <sub>3</sub>	270	216	309	68	269	20	109	202	4.0
Specific Conduc-									
tance (µm)	900	531	802	319	732	55	272	536	10.0
Hydrogen Ion									
Conc., pH	8.1	7.6	7.7	8.3	7.7	9.5	8.1	7.5	6.7
Nitrate, NO <sub>3</sub>	3.33	2.8	10	1.20	29	0.1	0.85	4.5	<0.1
Chloride, Cl	121	32.3	74	46	46	2.0	14	36	0
Sulfate, SO <sub>4</sub>	24	26	69	35	43	1.0	22	49.8	1.3
Bicarbonate,									
HCO <sub>3</sub>	317	263	-	100	326	15	132	246	4.9
Sodium, Na	142	29	-	41	40	1.4	13	26	1.0
Potassium, K	1.2	1.8	-	1.0	1.9	6.0	1.8	0	0.1
Calcium, Ca	37	57.1	167	60	47	7.0	35	46.5	1.1
Magnesium, Mg	14	27	167	32	46	0.8	8.5	32.5	0.02
Silica, SiO <sub>2</sub>	16	28	23	13.8	28	9.0	6	5.5	4.5
Iron, Fe	0.15	0.17	0.06	0.04	0.02	0.03	0	0.02	0
Manganese, Mn	0.11	<.005	<0.05	<0.05	<.01	-	<0.01	<0.01	<0.01
Fluoride, F	0.15	0.21	-	-	0.14	0.05	0.1	0.1	0
Boron, B	-	0.24	0.68	0.32	0.43	0.01	0.03	0.02	0.02

\* From Carollo Project Report, 1974.



Treated South Bay Aqueduct water will be transported to the west end of the Livermore-Amador Valley with the completion of a new Cross-Valley Pipeline. This pipeline will connect the two existing water systems, thus providing capability to provide the higher quality treated water to the west side of the valley. The Del Valle Water Treatment Plant will provide additional water production capacity by treating and purifying additional good quality imported water. This will be delivered to the combined water system via the Del Valle-Livermore Pipeline. Zone 7 will continue to utilize the existing well fields for meeting maximum demands during summer periods and for other operational or emergency purposes. Thus, there will be an improvement in the quality of the Zone 7 water delivered to the City of Pleasanton and VCSD due to the blending of the treated imported water with the Zone's pumped water. The resultant combined average hardness of the water served to the retailing agencies will be approximately 110 milligrams per liter, which would represent almost a two-thirds reduction in hardness of the water presently served by the Zone to Pleasanton and VCSD. The resulting hardness of the drinking water delivered to individual households by the retailing agencies will vary according to the quality of the water from City of Pleasanton and VCSD wells with which the Zone 7 water is to be mixed.

The Livermore area, although presently receiving treated imported water, will also realize an overall improvement in water quality. The retailing agency's local well pumping will remain at present quantities, and treated imported water deliveries will increase with time. Therefore, the ratio of treated imported water to local pumping water will increase, resulting in a reduction of the overall hardness due to the blending.

The present water management program for Pleasanton utilizes four wells. Two wells are owned and operated by the City of Pleasanton, which are generally utilized to their full capacity, as required by demand. The remaining two wells, identified as Zone Seven Wells No. 1 and No. 2, are owned and operated by Zone 7. These wells are operated to meet peak water demands that cannot be met by the City wells. The quantity of water drawn from respective wells and related levels of total dissolved solids (TDS) and Chlorides (Cl) is shown in Table 11. A review of these chemical analyses shows relatively high concentrations of the total dissolved solids in certain wells is in excess to the maximum recommended by the National Interim Primary Drinking Water Standards.\*

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\* Published by Environmental Protection Agency in Federal Register, 12 December, 1975 (40CFR 141).

TABLE 11  
WATER QUALITY  
CITY OF PLEASANTON WATER SUPPLY (1972-73)

	Zone 7 Wells		City of Pleasanton Wells		Total	PHS STANDARD
	No. 1	No. 2	No. 5	No. 6		
Flow, MGD	1.26	2.25	.25	.89	4.65	-
% of Total	27	48	6	10	100	-
TDS, mg/l	635	544	342	389	526	500 max.
Cl, mg/l	113	96	32	37	85	250 max.

From: Department of Public Works, City of Pleasanton.

The State Department of Water Resources has conducted several groundwater studies in the basin and has constructed a groundwater model. To date, inadequate data prevent application of the model. On 1 July 1974, a cooperative groundwater and streamflow monitoring program was begun with the U.S. Geological Survey (USGS) acting as lead agency and Zone 7, Alameda County Water District, and LAVWMA as participants. The California Regional Water Quality Control Board, San Francisco Bay Region, functions in the role of coordinator in this program.

Monitoring is being conducted at 9 surface-water sites in the Alameda creek basin, several of which are in the Livermore-Amador Valley with the remainder downstream toward San Francisco Bay. Six wells in the valley and 4 in the Niles Cone area are being monitored. The City of Livermore and the Valley Community Services District periodically provide samples of their effluent to the USGS as lead agency for analysis and comparative purposes in maintaining quality control of the monitoring programs.

An expanded groundwater monitoring program in the valley is being developed by Zone 7 and the USGS. The program plan calls for drilling about 90 wells for groundwater monitoring purposes. The first series of 25 shallow wells located to monitor groundwater in the vicinity of the 3 dischargers have been drilled and developed. Additional shallow, as well as deeper, wells will be drilled and monitored to provide better definition of the groundwater system and provide data useful in groundwater model verification. The program is funded by USGS and Zone 7.

(7) Wastewater. The San Francisco Bay Regional Water Quality Control Board (RWQCB) has promulgated very stringent wastewater discharge requirements for the effluent of the three existing wastewater treatment plants in the Livermore-Amador Valley. These plants are the City of Livermore Water Reclamation Plant, the City of Pleasanton Wastewater Treatment Plant, and the Valley Community Services District Wastewater Plant (Figure 3). These existing treatment plants cannot presently treat wastewater to the degree necessary to meet the SWRCB requirements.



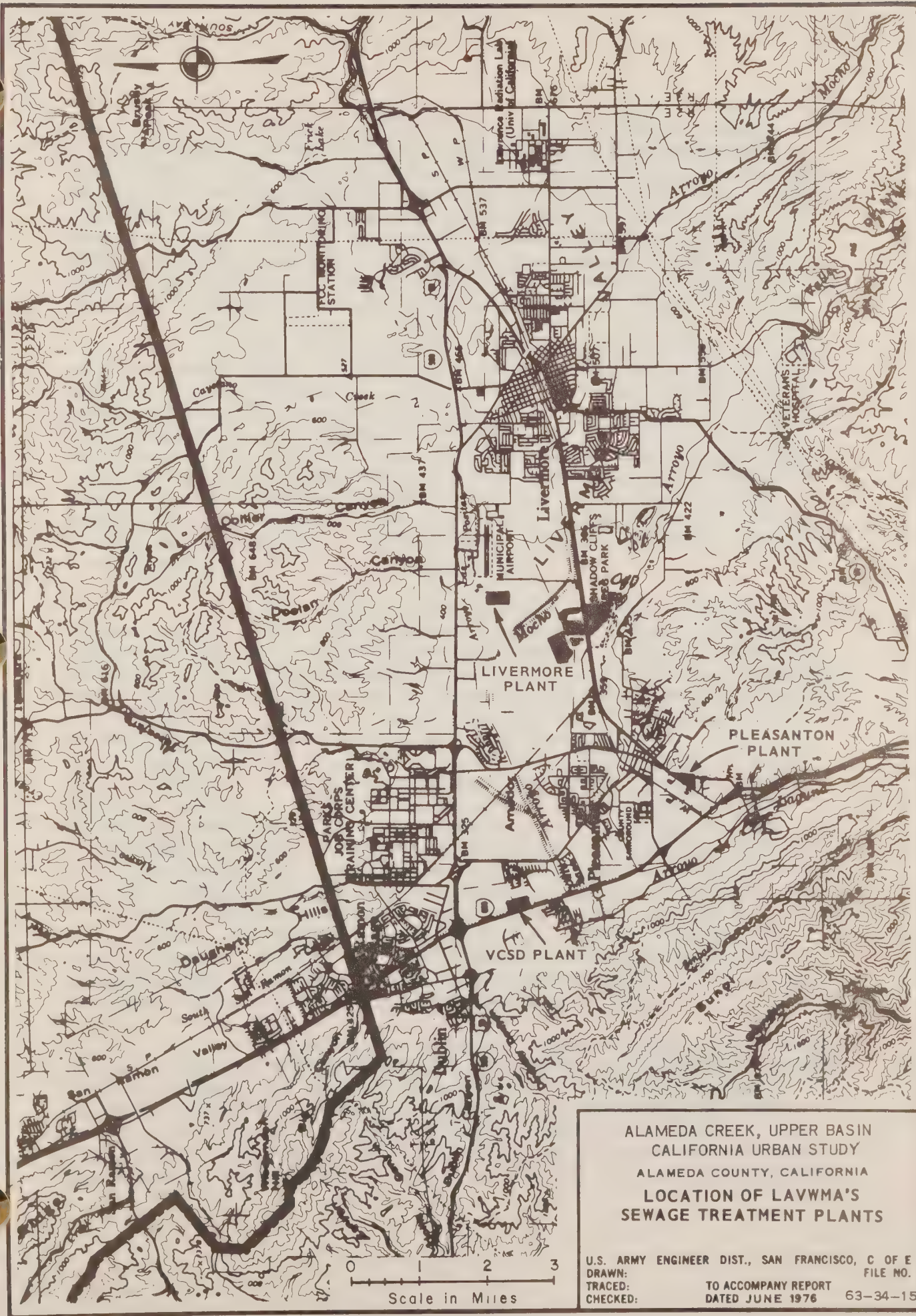


FIGURE 3





Wastewater flows from the three LAVWMA treatment plants totalled 9.25 mgd in 1974. Industrial waste contributed less than 0.5 mgd. Per capita wastewater flows average 95 gallons per capita per day for the three plants. Raw waste characteristics include BOD and Suspended Solids (SS) ranging from 200-400 mg/l and 125-400 mg/l, respectively. More than 95 percent of the wastewater in the Livermore-Amador Valley is treated or reclaimed at the three treatment plants. The City of Pleasanton plant is expected to be abandoned, and all of the wastewater flows from Pleasanton will be treated at VCSD.

The VCSD plant is a 4 mgd activated sludge facility with dual-media filters. The initial portion of the plant was constructed in 1961, the second stage in 1971. The plant consistently achieves BOD and SS removals of 98 percent or better. TDS and chloride concentrations of the effluent are in the range of 900-1100 mg/l and 180-220 mg/l, respectively. The City of Livermore Water Reclamation Plant was initially constructed in 1959 with a second stage added in 1967. The plant incorporates both trickling filters and aeration basins. Capacity is 5 mgd. The plant achieves BOD removals of 90-96 percent and SS removals of 80-94 percent. TDS and chlorides range from 725-900 mg/l and 170-215 mg/l, respectively.

In order to develop a regional solution to the problem of under-capacity, the three agencies formed a new joint powers agency called the Livermore-Amador Valley Water Management Agency (LAVWMA) in May, 1974. This agency pursued a planning process designed to culminate in the design and construction of facilities to treat wastewater to meet the 1977 goals as ordered by Public Law 92-500. The planning process is outlined in Section 201 of PL 92-500, Facilities Planning. There are three planning stages involved. Stage I is called the Project Report and results in a document that outlines alternative approaches engineeringly feasible. In addition, an environmental impact statement or assessment is prepared which addresses the impacts of implementing any of the engineering alternatives. After review by responsible agencies, an alternative is selected that best meets engineering and environmental criteria. Stage II begins with the design of the selected facility and results in a report outlining the specifications of the project. Stage III is actual construction of the facilities. LAVWMA retained John Carollo Engineers and URS Research Company to prepare the engineering and environmental portions of the Project Report called for in Stage I. The LAVWMA future service area is delineated in Figure 1.

The scope of the Project Report includes a discussion of the general conditions within the study area, describes the community and its services, and provides data concerning expected development in the area. Water and wastewater characteristics are noted and the existing collection and treatment facilities described in detail. Discharge limitations are included with resulting treatment and disposal requirements. Alternative courses of action are evaluated to determine

physical, environmental, and economic impacts over the twenty-year planning period. A schedule of implementation of the project is presented including comments concerning operation and maintenance. Financial considerations and methods of allocation of costs are provided in the form of a financial plan and a revenue program.

The waste discharge requirements of current or tentative National Pollution Discharge Elimination System (NPDES) permits are used in the evaluation of wastewater treatment and disposal alternatives. Discharge requirements are based on water quality objectives set forth in Basin Plans and by Regional Water Quality Control Board policy. Of particular significance, are the water quality objectives that prevent the degradation of groundwaters and surface waters in the Alameda Creek watershed.

Fifteen possible project alternatives were identified in the Facilities Plan and submitted to the State Water Resources Control Board. The fifteen alternatives fell into the four general categories of:

Treatment and receiving water discharge,  
Land application,  
Treatment and reuse,  
Combinations.

A committee of representatives of the SWRCB, RWQCB, and EPA made a preliminary screening of the fifteen alternatives, resulting in approval of three viable alternatives for evaluation. At the request of LAVWMA two more alternatives were approved, making a total of five alternatives subject to detailed analysis. These five viable alternatives were:

1. Treatment and Export to South San Francisco Bay,
2. Treatment and Export to the East Bay Interceptor,
3. Treatment Including Demineralization with Local Discharge,
4. Impoundment and Reuse for Irrigation with Wet-Weather Release of Excess Water-Salt Routing,
5. Combination Alternative - Initial Export with Future Demineralization for Reuse.

Treatment requirements for disposal to either South San Francisco Bay (north of the Dunbarton Bridge) or the East Bay Dischargers Interceptor are essentially the same. These discharges will require secondary treatment, nitrification, chlorination, and dechlorination. Discharge to the Alameda Creek watershed will require nitrification, denitrification, filtration, chlorination, and dechlorination after secondary treatment. In addition, dry-weather discharge will



require demineralization in order to meet rigid limitations on dissolved solids. Dry-weather impoundment, with managed releases during wet-weather flows, will preclude demineralization. Advanced treatment, up to coagulation, filtration, and dechlorination, may be required depending upon the use of the impoundment. Land application of wastewater will require only secondary treatment with chlorination.

The LAVWMA Board of Directors, on 10 June 1975, selected the second alternative -- treatment and export to the East Bay Interceptor. Since the Environmental Protection Agency retains the right to participate in the selection process, the Draft EIS prepared jointly by EPA and LAVWMA and presented at a public hearing on 13 January 1976, contained a discussion of each of the alternatives. EPA is currently receiving responses to the draft EIS and will complete the final version by June, 1976. LAVWMA's estimated schedule calls for completion of the Project Report in August and State and EPA approval in September, 1976. Stage II, Design, should commence in November 1976 and require approximately one year. The actual construction, Stage III, should be completed in July 1979.

## B. DESCRIPTION OF EXISTING PROBLEMS

1. Flood Control. Flooding in the study area is caused by the rapid response of the basin due to the steep topography in the upper portions of the basin to runoff-producing rainfall, inadequate channel capacities, and numerous stream crossings that constrict high discharges. The constriction of channels, which has been accompanied by development in the flood plain, has tended to increase the threat of flood damages.

Major flooding occurred in the Alameda Creek basin in 1862 and 1911. Numerous minor floods were reported between 1863 and 1888. Between 1889 and 1910, five major floods and five less-damaging floods occurred. After the major flood in 1911, two less-damaging floods and sixteen minor floods occurred between 1912 and 1945. Development in the study area, in large part, has occurred since 1945. The following tabulation presents the dates and estimated damages for several recent, significant flood events:

<u>Flood Event</u>	<u>Damages 1/</u>
November 1950	\$1,100,000
January 1952	\$1,500,000
December 1955	\$3,700,000
April 1958	\$1,850,000

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1/ Estimated damages at time of flood.

Since the 1958 floods, Alameda Creek has been channelized along the lower reaches and impoundments have been constructed to reduce flooding. Flood damages still occur along major tributaries. In 1962, flooding in the unincorporated areas of Alameda County, in combination with mud slides and gale winds, caused the region to be declared an emergency area.

The history of flooding as well as plans of improvements which have been developed to reduce flood damages are described in reports on flood control noted in the section on "Current Planning and Related Data," found later in this report.

A review of the available information indicates that about 8,200 acres would be subject to inundation during the 100-year flood. The 10-year flood would be confined to most of the existing channels, except for some areas along Arroyo de la Laguna and tributaries to Arroyo Mocho which are north of Interstate 580.

The flood plains in the City of Livermore have been partially developed and without controls further encroachment is likely. The land located in the flood plains of Arroyo Mocho and Arroyo Seco within Livermore is chiefly devoted to open space, residential, and commercial uses. Along the Arroyo las Positas and Altamont Creek flood plains within the city limits, the land is primarily open, with some residential use. The flood plain of the Arroyo las Positas relocation remains open space. In addition to the above-mentioned development, public utilities, city streets, and railroads constructed in the flood plains are threatened by flood damage. The City of Livermore has indicated its concern with flood plain development by purchasing a strip of undeveloped flood plain along Arroyo Mocho to be retained as open space.

Development within the City of Pleasanton has spread to cover a large portion of the flat valley area which ranges in elevation from 316 feet to 345 feet M.S.L. A portion of Pleasanton's developed area is situated at the low point of the valley floor and is in the Arroyo de la Laguna flood plain. The Arroyo de la Laguna receives runoff from the Alameda Creek basin by a number of streams and manmade channels. The contributing drainage basin at this point is approximately 405 square miles, including the area above Del Valle Dam which is located 7 miles southeast of the city. Flooding in the past has been characterized by the inadequacy of the natural channels in the area, especially the restricted capacity of the Arroyo de la Laguna below Interstate Highway Route 680. Public utilities, roads, highways and railroads have been constructed throughout the flood plains of the Alameda Creek watershed. Without controls, further development of the flood plains can be expected. Flooding throughout the remainder of the rapidly urbanizing developable portion of the study area is similar in nature. Buildings and utilities, roads and highways, and crops are damaged. Traffic is also affected.

The tangible and intangible costs associated with flooding in the study area have been used to develop a priority system of flood damages, a system which could be used to systematically reduce flood damages in the study area. The first priority flood problem involves the Arroyo de la Laguna and upstream urban developments in the Pleasanton area, where about 2,100 acres are subject to inundation from the 100-year flood. Arroyo de la Laguna is presently unimproved and there are several bridges which causes backwater ponding during times of high flow. The second and third priority problems are Chabot Canal (I-580 to Arroyo Mocho) and Tassajara Creek (first 0.65 miles upstream from existing channel improvement), respectively. The problem on these two reaches consists of inadequate channel capacities and channel degradation. The fourth priority problem exists at the confluence of Arroyo Mocho and Arroyo las Positas where 610 acres are subject to flooding during the 100-year event. The problems involves the breakout of flood waters from the channel and subsequent overland flow inundating downstream urban developments.

In addition to these priority problems, the following streams in Alameda County have potential flood problems that should be addressed: Alameda Creek, Arroyo Valle, Arroyo Seco, Altamont Creek, Alamo Creek, South San Romano Creek and Pleasanton Creek.

2. Water Supply and Quality. Current water demand projections (Table 8) do not suggest deficient future supplies provided annual imported water from the State is available as planned. The safe yield of the groundwater basin without imported water is 18,000 acre-feet. Other local surface water sources amount to 6,000 acre-feet. With 46,000 acre-feet from the State in 1997 the total supply (70,000 acre-feet) exceeds, by a significant margin, both of the demand projections in Table 8 for the year 2000.

However, the State of California has indicated a need to reevaluate projected imported water allocations to watersheds having sufficient groundwater resources. During future periods of water deficiency, areas not possessing useable groundwater may be forced to rely on imported waters. In such a situation water previously committed to one watershed may have to be diverted to another. The costs and technical considerations involved in maintaining self-sufficiency for the short- (20 year) and long-term (50 year) time periods must be explored.

When LAVWMA begins exporting wastewater, there will be a net loss to the groundwater basin which was previously recharged with that wastewater. That practice will have a direct impact on the future supply.

There exists a clear conflict between objectives of four gravel, sand and aggregate mining companies and the goals of water resource management agencies with responsibilities for protecting and maintaining



the groundwater basin. The interests of the four companies (California Rock and Gravel Co., Kaiser Sand and Gravel Co., Lone Star Industries, and Rhodes and Jamieson) are better served by keeping the water table low. However, in the view of the State Department of Water Resources, the Regional Water Quality Control Board, and Zone 7, unrestricted gravel mining operations will have severe impact on the storage capacity and transmissivity of the groundwater basin.

The quality of groundwater in the Valley has been affected by the extensive use of water softening agents and from non-point sources of pollution. It is estimated that there are 15 groundwater sub-basins in the Livermore Valley. Water quality data on these basins are limited and water quality appears to vary considerably between basins. Three sub-basins are of particular concern. These three, the Amador, Bernal, and Mocho sub-basins are used for local industrial, agricultural, and domestic water supplies. Zone 7 is currently operating percolation facilities for the recharge of the Amador and Mocho sub-basins. Limited water quality data indicate that the TDS concentrations in the three sub-basins range from 300 to 600 mg/l.

Water quality in the surface waters is largely a function of streamflow. During periods of wet weather, runoff is the predominant factor in determining stream water quality. During periods of wet weather, TDS concentrations at Niles Gage range from 300 to 800 mg/l with the majority of the flow falling below 400 mg/l. During dry weather, the quality of the surface streams is a function of the discharges from the Livermore, VCSD sewage treatment plants and South Bay Aqueduct releases by the Alameda County Water District and Zone 7. The effluent discharges from those treatment plants have average TDS concentrations during the months May-October of 790 mg/l and 976 mg/l respectively. South Bay Aqueduct water has, during those months, average TDS concentrations of 130 mg/l. See page 21 for an evaluation of water hardness and TDS concentrations. Implementation of the LAVWMA wastewater export plan will have significant effects on water quality within the basin as well as on water supply.

3. Non-Point Wastewater Pollution. As described on pages 24-28, LAVWMA has prepared a feasibility-level report and environmental impact statement (EIS) on several alternative plans for treating the municipal wastes of the three dischargers in the basin, Livermore, Pleasanton and VCSD. Implementation of the selected alternative will meet the 1977 water quality goals as set forth in P.L. 92-500. The 1983 water quality goals of P.L. 92-500, including non-point pollution sources have not been addressed by the feasibility-level report. However, the Corps will consider the LAVWMA facilities plan to constitute a final solution for point source pollution within the basin. The non-point pollution problem that still requires definitions and feasible solutions is largely a function of stormwater runoff contamination to surface and groundwater resources. The quantity of pollutants entering receiving waters in

urban runoff is, in many cases, as great as the same quantity from municipal and industrial sources. Typical pollutants include: organic materials that contribute to the biochemical oxygen demand (BOD), suspended solids, pathogens, sediment from construction and erosion, air pollution fallout, gasoline additives, oil and grease, heavy metals from vehicular emissions, nitrogen and phosphorus from chemical fertilizers, animal wastes, leachates from leaves, and pesticides.

As the rainwater passes through the atmosphere, it picks up pollutants in the form of particulate matter and gases. When rainfall intensity increases, overland flow velocities become sufficient to transport solid and dissolved pollutants. The pollutants ultimately reach the receiving waters through storm water collection systems--gutters, storm sewers, culverts, flood control channels, and natural water courses including intermittent streams. Once the pollutants from surface runoff reach the receiving waters, they can cause water quality problems similar to those caused by municipal and industrial point source discharges.

As municipal and industrial point sources are brought into compliance with National Pollutant Discharge Elimination System (NPDES) permits and improved source control measures are instituted, surface runoff will constitute a larger percentage of total annual pollutant load discharged into receiving waters. For example, it has been estimated that in 1970 surface runoff amounted to about 56 percent of the total heavy metal load discharged to basin receiving waters, compared with 30 percent from municipal and industrial point sources and 14 percent for other non-point sources (State Water Resources Control Board, 1975). For the year 2000, it was estimated that surface runoff will contribute about 70 percent of the load, municipal and industrial sources 20 percent, and other non-point sources only 10 percent.

Despite what is known about pollutant sources and loads in surface runoff, information on the relationships between pollution sources and their impacts is still very inadequate. In order to develop control measures for surface runoff, more information will be required. In the course of this study, runoff problems in both urban and rural areas will be examined. However, greater emphasis will be given to urban runoff because it is a more important source of pollution.

4. Water-Oriented Recreation. There are recreation facilities at the Del Valle Reservoir. However, officials of the East Bay Regional Park District (EBRPD) cite a need to connect that regional park to an East Bay system of parks and trails by providing a trail system along Arroyo Valle to Shadow Cliffs, then along Arroyo de la Laguna to Alameda Creek and out of the basin through Niles Canyon -- following the creek to the Bay where it would meet a shoreline trail. EBRPD officials cite further the need for a trail along Alameda Creek upstream to Sunol Regional Park and Calaveras Reservoir. The Livermore-Amador Valley Sand

and Gravel Committee suggests that some of the need for water-oriented recreation could be met by providing swimming and boating at the Shadow Cliffs area in connection with a realignment of Arroyo Mocho to facilitate groundwater recharge. Neither the real potential for this measure nor the constraints are fully understood at present.

Officials of Livermore Area Recreation and Park District cite the need to make the many arroyos in their service area (on the east side of the basin) more accessible to use by the public by providing trail systems along the arroyos.

There is a strong faction of property owners (principally in Pleasanton) who vehemently oppose any provision for recreation along arroyos adjacent to private property.

5. Fish and Wildlife. Natural resource management officials believe high TDS concentrations in surface and groundwater and other water quality parameters have adverse impacts on fish and wildlife in the basin. A desire has been expressed to restore and enhance the fish resource.

6. Air Quality. The Livermore-Amador Valley has a critical ambient air pollution problem. The problem is of utmost concern to both residents and planning agencies in the Valley. Although the Corps will not specifically address the air quality problem as a separate study task, all alternatives will be evaluated for their impact on air quality. One important component of the working relationship between the Corps and the Area Wide Wastewater Management Planning Agency, ABAG, will be their consideration of Corps alternatives for secondary impacts; for example, air quality.

## C. STUDY PLANNING OBJECTIVES

1. National Planning Objectives. The national planning objective of the multi-objective planning framework is to guide planning for the conservation, development and management of water and related land resources. The U.S. Water Resource Council (WRC) has issued a set of "Principles and Standards" which establishes guidelines for the planning and evaluation of water resource systems. The Corps of Engineers has recently issued a set of implementing instructions for these Principles and Standards under the generic heading of "Planning Process," dated November, 1975. The "Principles and Standards" require the consideration of multi-objectives which, in addition to the traditional national economic development objective (NED), includes an environmental quality objective (EQ). Both objectives are to be evaluated with respect to regional development (RD) and social well-being (SWB) accounts.



In order to assure that NED and EQ objectives are met, the "Principles and Standards" require that alternative plans be developed such that one optimizes NED benefits, while the other emphasizes EQ benefits. Other alternatives with varying emphasis on the two objectives will be developed.

Evaluating the impacts of alternative plans becomes complex when multi-objectives are introduced. Evaluation methods and procedures are suggested by WRC which are fairly well defined for the NED objective. For EQ, RD and SWB impacts, however, the state-of-the-art is such that much of the evaluation work has to be tailored to the particular problem, particularly for the RD and SWB accounts. A key to the successful application of the "Principles and Standards" lies in the selection and use of data to describe the existing conditions of the region in a way that the interaction with water resource systems becomes apparent. Along with the proper use of data describing the region's problems and their link to water resource systems, it is essential that planning objectives be defined for measuring the contribution of alternative plans to each of the four categories of NED, EQ, RD and SWB.

This study will be conducted so that:

Alternative plans emphasizing the NED and EQ objectives will be developed.

Full consideration will be given to the NED, EQ, RD and SWB accounts.

Planning objectives will be stated so that trade-offs between benefits and liabilities are explicit.

Alternative plans will be developed reflecting the various preferences of the publics in the area. This is important since major differences among public groups are expected. The role of the Urban Study in this situation is to clearly display the alternatives so that the local decision-making process can operate.

2. Urban Study Program Objectives. The primary objective of the Upper Alameda Creek Urban Study is to develop, with continuing and effective coordination and participation from the publics concerned, a range of feasible water resources planning alternatives for the study area that will be specifically oriented to meet the issues and needs of the urban and urbanizing areas.

More specifically, the objectives to be utilized as guidelines throughout the conduct of this study will:

a. Identify existing and long-term water resources problems, needs, and issues,

b. Develop alternative systems for resolving such problems, meeting such needs, and considering such issues,

c. Give high priority in formulating solutions, to non-structural aspects such as institutional, financial, and management components, either as implementing tools for structural aspects or as specific solutions in themselves,

d. Assess and evaluate the economic, environmental, and social impacts of the alternatives systems developed, and identify and quantify, insofar as possible, trade-offs within and between these systems,

e. Develop detailed information and analytical tools to assist the concerned public in making water resources use decisions, and to serve as a catalyst for solving other related urban problems,

f. Avoid duplication of related existing and ongoing water resources studies and programs - but instead supplement, and expand upon, such other efforts, and

g. Compare alternative systems and present in an understandable manner, thus assisting the concerned public in making decisions and selections for meeting the identified needs.

### 3. Local and Regional Objectives.

#### a. Flood Control and Flood Plain Management

To prevent or reduce potential urban flood damages resulting from flooding in the Livermore, Amador, San Ramon, Vallecitos and Sunol Valleys. To display a set of alternatives on management, institutional measures, and structural improvements for flood control. To emphasize a more comprehensive regional approach to flood control solutions.

#### b. Water Supply

To assess sources and provide for orderly development of adequate urban water supplies. To address water supply alternatives in the event of depletion or degradation of existing sources. To assess long-range (50 year) water supply requirements. To examine long-range wastewater reclamation and reuse potential.

#### c. Water Quality

To evaluate and eliminate groundwater degradation in the Upper Alameda Creek Basin; including the effects of surface runoff, sand and gravel extractive industries, recharge activities and domestic infiltration on groundwater resources.

d. Non-Point Wastewater Management

To determine and provide suitable means of economically and technically achieving levels of non-point wastewater treatment to meet PL 92-500 and State water quality standards by the years 1983 and 1985 and maintain those levels in accordance with provisions to be set forth in the ABAG 208 plan.

e. Water-Oriented Recreation

To maximize the recreation potential of intermittent and perennial streams in the Upper Alameda Basin. To provide alternative recreational opportunities using new as well as conventional techniques such as including wastewater reuse.

f. Fish and Wildlife Preservation and Enhancement

To provide for protection and enhancement, or creation of areas of fish and wildlife habitat. To preserve, protect and enhance areas of critical environmental concern with particular emphasis on the riparian ecosystems and to evaluate the impact of water resources development on other natural resources including air quality.

D. STUDY PROCEDURE

The evolution of the planning alternatives to be prepared by the Corps will be characterized by a close, cooperative working relationship with the Section 208, Areawide Wastewater Management Planning Agency, ABAG. Since some of the planning objectives and missions between the Urban Study and Section 208 programs are similar, detailed work allocation agreements will be formalized before actual planning efforts commence. In order to insure a unified, comprehensive water resources planning effort for the Upper Alameda Creek Basin, the Corps is proposing that it handle planning efforts germane to flood control, water supply, water quality, non-point wastewater management, and water-oriented recreation. At present, the Corps is expecting direct input from ABAG throughout its study in the areas of the development of population projections and locations, preparation of lists of potential surface runoff problems to be addressed and candidate solutions to be considered, assistance in the operation of an automated geo-based information system with modeling capability and identification of secondary impacts of water-resources alternatives. The following paragraphs address the procedures the Corps expects to follow in pursuit of a range of planning alternatives to suit the water resources requirements of the study area.



1. National Planning Process. The national multi-objective planning framework requires the systematic preparation and evaluation of alternative ways of addressing problems, needs and opportunities to enhance national economic development (NED) and the quality of the environment (EQ). This results in information necessary to make effective choices regarding resource management under existing and projected conditions. Structural and non-structural alternative plans will be formulated. Plans will be evaluated in terms of four accounts - national economic development, environmental quality, regional development and social well-being.

Planning to achieve the EQ objective will address the broadest scope of concerns pertaining to the natural and cultural environment. EQ plans will include only those measures which are concerned with management of water and related land resources and will address water resource needs. The components of the EQ objective include:

- (a) Management, protection, enhancement, or creation of areas of natural beauty and human enjoyment,
- (b) Management, preservation, and enhancement of especially valuable or outstanding archeological, historical, biological, and geological resources and ecological systems.
- (c) Enhancement of quality aspects of water, land and air by control of pollution or prevention of erosion, and restoration of eroded areas.
- (d) Avoiding irreversible commitment of resources to future uses.

The NED plan addresses the planning objectives in the way which maximize net economic benefits. Net economic benefits are maximized when plan scale is optimized and the plan is efficient. Scale is optimized when the benefits of the last increment of output for each measure in the plan equals the economic costs of that increment. A plan is efficient when the outputs of the plan are achieved in a least cost manner. Federal regulations require that an NED plan have net economic benefits. The components of the NED objective include:

- (a) The value of increased outputs of goods and services resulting from a plan.
- (b) The value of output resulting from external economies associated with a plan.

In addition to the NED and EQ plans desired above, additional plans which serve significantly different mixes of NED and EQ will be formulated so as to not overlook the best plan. The number of alternatives

which address a mix of NED and EQ to be carried through to the end of the planning process is a function of the diversity of public and professional expressions and the characteristics of the outputs possible for the measures available to address the existing local and regional objectives.

2. Urban Study Planning Process. The Upper Alameda Creek Basin Urban Study will be conducted in three stages. Throughout the study and in each stage there will be a five-step iterative process which will become more detailed with succeeding iterations. The study and the resultant alternative plans will have five functional components (flood control and flood plain management, water supply and quality, non-point wastewater management, water-oriented recreation and fish and wildlife preservation and enhancement). Each functional component will have three elements: (1) a capital improvement program (2) a management program and (3) a revision program. Also there will be developed at least two distinct implementation arrangements for each alternative plan.

A parallel water resources management analysis will be conducted concurrently with the above three-stage study. This institutional analysis will determine a feasible arrangement or optional arrangements for local public and private institutions and specify the fiscal and organizational capability necessary to carry out each of the alternative plans. The results of this analysis will serve particularly as impact display and as input to the implementation arrangements.

a. Stages:

(1) Stage 1. (Plan of Study) This sets forth the study scope, describes how the study will be conducted and who will participate. It involves a preliminary analysis of water resource problems and initial identification of water resource planning objectives, including:

- (a) Local and regional objectives,
- (b) Urban Study Program objectives, and
- (c) National objectives from the Water Resources Council's "Principles and Standards."

The POS serves as a agreement of participation by all pertinent Federal and non-Federal agencies and other publics concurring in its content.

(2) Stage 2. This stage, of about two years duration, will involve a more thorough analysis of the problems identified, and will result in a preliminary range of solutions in the form of initial plans for each study component. During this stage a technical report describing near-term solutions and non-structural control measures for stormwater runoff will be prepared and turned over to ABAG, and a first draft of the background information appendix and the plan formulation appendix will be completed:

(a) "Background Information Appendix" - to provide a discussion of the existing regional profile and desired future condition(s), and to identify the specific problems, issues, needs, and concerns to which solutions will be addressed, and,

(b) "Plan Formulation Appendix" - to furnish documentation of the following:

1. Significant regional water resource problems, concerns and issues,
2. Identification of the water resources planning objectives,
3. Formulation of alternative urban water resources plans,
4. Design of component systems,
5. Assessment of the impacts of alternative plans, and,
6. Evaluation of alternative plans and impacts.

(3) Stage 3. This stage, involving approximately 15 months will involve the coordination of interrelationships between the various plan components and the formulation of detailed alternative plans. This stage will culminate in preparation and processing of the final report. Any Federal projects recommended in the final report will be referred to Congress for review and authorization.

b. Planning Process. Throughout the study, and during each stage, a five-step iterative planning process will be followed - with each succeeding iteration involving increasing levels of effort, detail, and refinement. The iterative process will also provide the means for interjecting additional information and for modifying the scope of the study should that become advisable at an advanced stage. Throughout the entire process, an active on-going public participation program will be undertaken. It is essential to emphasize that before alternative plans



are subjected to successively detailed analyses, their direct and, even more importantly, indirect socio-economic and environmental impacts will be addressed and presented to the public via workshops for review. This should reduce or eliminate efforts directed toward refining counter-productive water resource management plans with other local, State and national goals, such as air quality. The following are detailed explanations of the planning steps:

(1) Identification of Water Resources Problems and Requirements. The study process begins with this step. It is designed to clearly and completely examine the range of water resource problems in the study area plus the issues and concerns indirectly related to water resources. In this step water resource problems will be extrapolated into the future to enable the assessment of future conditions.

(2) Determination of Water Resources Planning Objectives. After identifying and describing water resource problems, the next step will be to refine planning objectives. These should embrace the local and regional objectives, the Urban Study Program objectives and the national planning objectives. All objectives will be combined into sets of unified and concise study planning objectives without respect, necessarily, to their sources.

(3) Formulation of Alternative Plans. In this step, complete urban water resource management systems will be developed which will satisfy the planning objectives. These systems will be formulated by taking the following sub-steps:

- (a) Identify non-structural devices,
- (b) Identify structural devices,
- (c) Add neutral devices (e.g., fiscal controls), and
- (d) Identify plans of the public.

Among the alternatives considered, one will be a "do nothing"; one will optimize the national economic development (NED); and one will emphasize environmental quality (EQ).

(4) Assessment of Alternative Plans. In this step, the changes expected to result from implementation of the alternative plans will be compared to the base condition of the region. This will be done to determine the economic, social, and environmental changes that are expected to occur with the plan. The following sub-steps will be followed in assessing impacts:

(a) Specify the conditions existing without implementing any of the alternative plans,

(b) Identify what are the impacts,

(c) Determine the locations of the impacts,

(d) Determine the timing of the impacts, and

(e) Measure the extent of the impacts.

(5) Evaluation of Alternative Plans. This step will involve the determination of how well the alternative urban water resources plans achieve the planning objectives and their effects on other related problems. This evaluation will provide the basis for trade-offs among the alternative plans so that a recommended plan or plans can be selected. The evaluation will proceed as following:

(a) Categorize and evaluate impacts,

(b) Consider criteria for choice between plans, including:

1. Locally held values, principles and policies,

2. Criteria set forth in the Water Resources Council's "Principles and Standards," and

(c) Choose between alternative plans.

Consideration of mitigation measures will be an integral part of the planning options.

3. Functional Area Tasks. In order to apply the planning process to any functional task, certain data management tools must be available. To begin, a survey of existing land use and environmental data must occur. Data deficiencies that are recognized will be resolved using land surveys and existing remotely sensed data products. The Alameda Creek Urban Study will be flexible to permit acquisition of new data when the need exists. Data collection activities, however, will be carefully coordinated with local, State and Federal planning, and other data collection activities. (For example, ABAG's Section 208 program, the USGS remote sensing interpretation activities and NASA's and the military's data collection program.) It is important to emphasize that consideration of remote sensing systems does not obligate the Corps in any way to employ that system. It is generally felt that, when available, remote sensing data can be a cost effective data source from which a variety of environmental information can be gleaned. The next major

concern will be the storage, manipulation and retrieval of demographic and geographic data through some form of an information system. While not mandatory, the use of an automated information system affords benefits in terms of economic advantages, data quantity capability and time savings. The most important advantage of an "information system", however, is an improved capability to perform sophisticated planning analyses. Manual manipulation of maps and tabular data severely restricts the level of planning considerations available. Automated manipulation and production of "3 d" generation maps allows rapid, economic, efficient graphic display of conceptual planning alternatives.

The primary form of information display for systems of this type are maps showing spatial distribution of data values. Tabulation and text capabilities are also available. Geographical location formats for these data will vary and the information system must be capable of accepting diverse data and converting it to desired location systems. Similarly the information system must be capable of handling data collected both by data cells and point, line and area methods. Prior to selection of an automated information system, a detailed analysis of specific system requirements must be made. The evaluation of potential information systems will require consideration of system capabilities in the following major categories: data collection, conversion, storage, manipulation and presentation.

In this regard, several related activities will have direct bearing on any decisions involving automated geo-based information systems. The first refers to a comprehensive analysis of contractor's capabilities to digitize, manipulate and display geographic data sponsored by the U.S. Army Office, Chief of Engineers, Wash. D.C. and conducted by the Army's Engineering Topographic Laboratories, Ft. Belvoir, Virginia. The results of that analysis are being reviewed and should assist the San Francisco District in contract specifications design or contractor selection, if the need arises.

Another activity involves the current utilization of an automated information system by a local planning agency. The City of Livermore contracted Grunwald Crawford Associates, Hanford, California, to update the community General Plan. They, in turn, contracted the COMARC Design Systems, San Francisco, California, to provide geographic data manipulation capability to assist in the preparation of hazard, conservation and recreation maps. In addition, land capability and suitability analyses were performed on the existing data base. This data base consists of 2.5 acre grid cells for a 139 square mile area encasing Livermore. The source data includes maps on topography, slope, cenozoic deposits, landslides and other surficial deposits, landslide susceptibility, faults and epicenters, surface water, flood plains, soil types, erosion hazards, shrink-swell, agricultural capability, vegetation and relative wildfire hazard. These maps were provided by the City of Livermore to Grunwald who turned them over to COMARC for digitization.



All software and hardware indigenous to the automated mapping capability are stationed in the COMARC facility in San Francisco. Careful review of the data source's completeness, accuracy and adequacy will be made in cooperation with ABAG before any commitment to this tool is considered.

Finally, the ABAG Section 208, Area-wide Wastewater Management Planning Program, will be utilizing its own automated information system.

The evolution of the development and incorporation of such a system is uncertain at this time. The San Francisco District will take particular care to coordinate planning and implementation of any such information system with OCE guidelines, and existing and proposed systems.

a. Flood Control and Flood Plain Management. An inventory of all existing flood control measures as they relate to significant urban problems will be prepared with emphasis being placed on channel capacities for to carry flows of 50 and 100 year frequencies and Standard Project floods, and stage and duration reduction capabilities. An analysis of the condition and effectiveness of existing systems will be made. Using present land use data, future land use projections, Flood Insurance Administration studies for the incorporated and unincorporated areas, and other hydrology studies, potential flood damages under existing and projected conditions will be estimated.

Alternative solutions to flood problems will be developed and evaluated. Possible solutions to flood problems will emphasize non-structural measures but might include reservoirs, channel work, levees, floodwalls, pumping plants, flood plain management, floodproofing, or a flood insurance program. Benefits and costs for implementing solutions to present and anticipated future flood problems will be developed and used in the evaluation stage.

b. Water Supply and Quality. Water supply requirements for the Upper Alameda Creek watershed will be evaluated to determine sufficiency over the short-term (20 year) and long-term (50 year) future. The short-term needs, although adequately served via imported water, will be reevaluated in light of the States' position that counties depending on imported water should investigate alternative sources in the event imported water may have to be diverted during drought conditions. The long-term needs will be estimated based on various population and per capita use projections.

Groundwater resources will be studied using the existing DWR groundwater model. The current USGS/Zone 7 data collection program will augment available data on groundwater flows and quality. LAVWMA and EPA have selected a wastewater management alternative in their 201 Facilities Plan which calls for the export of secondarily-treated wastewater to the

East Bay Dischargers interceptor. The secondary impact of that alternative on water supply is only briefly noted in their EIS. Therefore, this important relationship will be analyzed. The long-term effects (20-50 years) of land application and/or reclamation and reuse of secondarily treated wastewater on water quality and on water supply will also be examined. Other alternative water supply sources will include construction of overflow retention structures and variable groundwater withdrawal strategies.

The quality of available water for potable and non-potable uses will be investigated in relation to requirements set forth in Public Law 92-500, EPA drinking water standards and Public Health Service criteria. Of principal concern will be the TDS buildup in the basin, the contribution of septic-tank effluent and gravel washing operations to groundwater degradation, and the quality of surface water relative to meeting the "fishable-swimable" requirements of PL 92-500 by 1983.

The prime objective of a TDS impact study will be to determine the relationship between total salt build-up in the basin and potential causative factors including:

- Wastewater Collection/Discharge
- Septic Tanks
- Urban Runoff
- Undeveloped Area
- Agriculture/Livestock
- Imported Water
- Air Pollution/Rain
- Groundwater Supplies
- Alameda Creek Discharge

This relationship will be expressed as a simulation model which should predict the fluctuation of total salt build-up in the basin as a function of independent variables. Care will be taken to separate independent variables distinctly to avoid "double-counting" and to permit examination of cause-effect relationships. The study will require some investigation into the chemistry of the salts and the effects of precipitation and dissolution.

The contribution of septic tank effluent and gravel washing operation to groundwater degradation may be investigated via a carefully designed sampling program. Quality data previously collected in the valley will be compared to samples to be taken in the foothills surrounding the valley to allow a comparison of residual versus man-induced salts in the groundwater. The range of solutions to be developed to resolve major negative contributions will concentrate on non-structural measures.

Available data on surface water quality during periods of dry and wet weather flows will be analyzed to determine degree of compliance with prescribed Federal and State standards. Projected surface water quality to be achieved once the Section 201 Facilities Plan is implemented will serve as a baseline condition for additional analysis. The emphasis will be placed on non-point discharge solutions to meet the required "no discharge" goal by 1985 of PL 92-500.

A market analysis will be conducted to determine whether there is sufficient demand for water for agricultural irrigation purposes to justify the establishment of irrigation districts by Zone 7. If sufficient demand is found, the institutional requirements for the establishment of such districts will be investigated.

c. Non-Point Wastewater Management. This study will only deal with non-point sources of pollution, specifically urban stormwater runoff. Point source problems are considered resolved through the Section 201 Facilities Plan, prepared by LAVWMA.

The storm runoff analysis will be conducted in two phases. Phase I, approximately 15 months in duration, will result in a surface runoff plan that is consistent with the type of plans being generated on a county scale via the ABAG Section 208 program. The Corps plan will represent ABAG's 208 portion for the Livermore-Amador Valley. The various tasks to be performed in this phase will: describe surface runoff systems; describe data needs; review land use data base; determine extent and cause of existing problems; determine extent and cause of future problems; formulate control measures; develop institutional and financial analysis for near-term control measures; assess-evaluate near term control measures; and, prepare a report. This phase will emphasize near-term control measures and non-structural solutions to runoff problems. ABAG will contribute to the wastewater management portion of the Corps study. Specifically, ABAG will provide a list of potential problems to be addressed, a list of candidate solution to be considered, population projections, land use data and an analytical (modelling) capability. Upon completion of Phase I Urban Surface Water Runoff studies, the Management Task Force will meet to discuss and assess the results of the Phase I investigations. A determination will then be made, based on Phase I results, as to the scope and direction of Phase II studies concerning long-range solutions.

The present concept for the Phase II of the wastewater study is to emphasize long-term control measures in greater detail. The information generated from this phase will assist the Section 208 Implementing Agency in the decision making process. Phase II will commence at month 15 of the study and continue in accordance with the Urban Study schedule.



d. Water-Oriented Recreation. Existing water-based recreational areas and facilities in the study area will be inventoried. Particular care will be taken to coordinate with the major recreational agencies. East Bay Regional Park District, Livermore Recreation and Park District, City of Pleasanton Parks and Recreation Department and the Valley Community Services District. This inventory will cover the location, capacity, condition, ownership and type of available facilities. The adequacy of existing recreation sites will be determined by applying existing use rates. Future recreational needs will be projected based on provided population trends and use rates, income levels and other pertinent social/ cultural factors, existing facilities, proximity to the area, the accessibility of existing and proposed areas, and other pertinent information. This includes an inventory and evaluation of potential areas for fish and wildlife enhancement.

Alternative solutions to meet recreation needs will be developed and evaluated as a function of flood control and water supply solutions. That is, water-oriented recreation opportunities will be developed for lands that would otherwise be acquired to satisfy flood control and water supply problems and this study will not per se address the recreation potential of all private and public lands. Possible solutions could include: development and expansion of existing sites, providing access, flood plain utilization, new parks and greenbelts, land acquisition and subsidy, land use regulation, and new lake development. Benefits and costs associated with solutions to meet existing and future needs will be determined and used in evaluating multi-purpose alternatives.

e. Fish and Wildlife Preservation and Enhancement. An environmental inventory will be taken to determine the: (1) existing fish and wildlife resources, (2) unique biological, geological, and botanical systems, and (3) significant historic, architectural, aesthetic, and archaeological sites. The impact of water resource development plans on the environment will be investigated using the environmental inventories as a baseline for environmental quality. This will also form a basis for program impact analysis. Air, noise, and other environmental problems not directly related to water resources which are recognized during the course of the study will not be investigated as specific line-items but will be evaluated in terms of secondary impacts.

After the existing conditions have been determined and evaluated, the environmental needs associated with the study area will be determined with the assistance of appropriate Federal, State, and local planning agencies and local conservation groups. Anticipated future environmental needs will be considered and alternative solutions to these needs will be developed. Possible solutions to environmental needs include restoration, preservation, and enhancement of existing environmental assets, land use regulation, guidelines for development

and construction, and enforcement of existing statutes. Benefits and costs for alternative solutions to environmental needs will be determined for use in the evaluation of the alternatives. An Environmental Statement, related only to features to be recommended for construction by the District Engineer will be prepared during Stage 3. This statement will accompany the final study report. Such recommendations will, of course, be based on publicly-selected plans.

#### E. CURRENT PLANNING AND RELATED DATA

##### 1. Completed Reports and Sources of Available Data.

a. Flood Control and Water Supply. Flood control and water supply in the watershed have been studied by various Federal, State, regional and local entities. Information is available in reports and files of the Army Corps of Engineers, the U.S. Geological Survey, the Soil Conservation Service, the State Department of Water Resources, the Public Utilities Commission, Zone 7, the Valley Community Services District, and the Cities of Livermore and Pleasanton.

The U.S. Army Engineer District, San Francisco, "Review Report for Flood Control and Allied Purposes, Alameda Creek, Alameda County, California," March 1961, was a comprehensive survey of flood control problems in the entire Alameda Creek Watershed and the "Review Report, Cost Allocation for Del Valle Reservoir, Alameda Creek Project, 1972", re-examined cost-sharing for the Del Valle Dam and Reservoir.

In addition to the above reports, the following reports have recently been prepared for the subject area to define flood-prone areas for flood insurance purposes: "Flood Insurance Study, City of Pleasanton, California," May 1972; "Flood Insurance Study for County of Alameda, California, Unincorporated Areas (Draft)," October 1975; and "Flood Insurance Study, City of Livermore, California (Draft)," February 1976.

The U.S. Geological Survey has published water surface records and streamflow characteristics for streams in California including those within the Alameda Creek Upper Basin. The U.S. Department of Agriculture, Soil Conservation Service has prepared "Alameda County Soil Survey," 1966; Soil Survey of Contra Costa County -- Interim Report," September, 1974; and "Eastern Santa Clara County Soil Survey," September 1974.

The State Department of Water Resources (DWR) has published several reports on water resources in the watershed. Their "Alameda County Investigation," Bulletin 13, March 1963, was a general investigation of water resources including surface and sub-surface supplies, projected demand, and alternative plans for surface development. The DWR report, "Livermore and Sunol Valleys Evaluation of Groundwater Resources," Bulletin 118-2, August 1966, and updated in June 1970, added current and detailed information to the 1963 report. Finally DWR has prepared Bulletin No. 118, "California Groundwater," September 1975 and No. 166-2, "Urban Water Use in California," October 1975.



The Alameda County Flood Control and Water Conservation District has done extensive analysis of the flood control and water supply conditions in their Zone Seven. That Zone covers all of the Alameda County portion of the watershed. Their "Engineers Report on Proposed Flood Control, Storm Drainage, Water Conservation, and Water Supply Improvements for Zone Seven," June 1960, contains a general description of flooding, and drainage and water supply problems confronting the Livermore-Amador Valley in 1960. It also lists proposed improvements, their costs and methods of assessment. The "Engineers Report on Proposed Flood Control and Storm Drainage Improvements for Special Drainage Area 7-1, Zone Seven," March 1966, was supplementary to the 1960 report. The District's files contain special studies of individual areas and outside evaluations of the adequacy and compatibility of flood control and water supply plans for areas within Zone 7.

The Cities of Livermore and Pleasanton and the Valley Community Services District each have drainage plans for their jurisdictions.

The City of San Francisco owns and operates the San Antonio and Calaveras Reservoirs, within the study area, as part of its water supply system. Information thereon is available in the files of the San Francisco Water Department.

b. Water Quality and Wastewater Management. Water Quality and wastewater management in the watershed have been studied at various times by various agencies. The Corps has recently completed a nine-volume report describing land application alternatives for wastewater management developed during Phase I of the San Francisco Bay and Sacramento-San Joaquin Delta Water Quality and Waste Disposal Investigation (Triple "S"). This study did not address this study area specifically. The U.S. Geological Survey and the State Department of Water Resources have jointly published "Alameda Creek Watershed Above Niles, Chemical Quality of Surface Water, Water Discharges and Groundwater," January 1964. The USGS files also contain information on surface water quality developed through a water quality monitoring program implemented in June 1974. The program is described in a staff memorandum entitled "Proposed Alameda Creek Basin Water Quality Monitoring Program," 1973, Revised 1974. USGS has also published, "A Review of Wastewater Problems and Wastewater Management Planning in the San Francisco Bay Region, California," 1973. DWR has also published Bulletin 118-2, "Evaluation of Groundwater Resources - Livermore and Sunol Valleys," June 1974. DWR files contain other reports and studies on special water quality conditions in the watershed. "The Water Quality Control Plan-San Francisco Bay Basin (2)" November 1974, prepared for the Regional Water Quality Control Board-San Francisco Bay Region to meet requirements of Section 303 (e) of PL 92-500, contains water quality objectives and standards for the Alameda Creek watershed.



The Association of Bay Area Governments has prepared the "Regional Water, Sewerage and Drainage Plan" in two phases; Phase I, July 1970 and Phase II, September 1971.

The "Water Quality Management Plan for the Alameda Creek Watershed Above Niles," September 1972, was prepared by Brown and Caldwell Consulting Engineers for the Cities of Livermore and Pleasanton, VCSD and Zone 7. The Flood Control District in its capacity as water supplier, cooperates with the USGS and State water resources agencies in maintaining water quality. The District files, therefore, contain additional information on water quality.

The Cities of Livermore and Pleasanton and VCSD have each contracted individually for consultant studies of their waste disposal facilities and procedures. The earliest of these was the 1957 Brown and Caldwell "City of Livermore Sewerage Survey."

c. Recreation. ABAG has published an "Inventory of Parks and Open Space of San Francisco Bay Region," 1967. The East Bay Regional Park District completed, in 1973, a park and recreation planning process for their service area which includes a large part of the study area. The process culminated in their "Master Plan," December 4, 1973. It is essentially a policies plan. As input to the process a planning consultant produced information on parkland site evaluations, acquisition, development and financing, and regional trails. The "Master Plan of the Livermore Area Recreation and Park District," August 11, 1971, Revised May 8, 1974, is the source of recreation data for the other major part of the watershed. The Santa Clara County Parks and Recreation Department has information for the southern part of the study area. The City of Pleasanton provides active recreation services within their jurisdiction. The outline for recreation is included in the City's general plan. VCSD has no plan for the active recreation services provided in their jurisdiction, however, it remains the source for recreation information.

The San Francisco Water Department administers considerable land holdings making up the watersheds of their water supply reservoirs. In 1969 they commissioned a study of possible recreational uses of those watershed lands. The study report, "Preservation and Recreation Concepts Alameda and Santa Clara Counties Watershed Lands," January 1969, is available at the Water Department.

d. Planning, Land Use, and Environmental Resources. The Federal Department of Housing and Urban Development and the U.S. Geological Survey have jointly conducted, since 1971, the "San Francisco Bay Region Environment and Resources Planning Study." Comprehensive information on the topographic, geologic, geophysical and hydrologic aspects of the nine-county Bay Area have been developed in the study.

The California Environmental Quality Act (CEQA) requires that an environmental impact report (EIR) be prepared for any development which may have a significant or controversial impact on the environment. Impact statements are an excellent source of data. The environmental setting portion requires an accurate account of current environmental resources before impact analysis is begun. The environmental impact statement (EIS) required by the National Environmental Policy Act for Federally-funded projects and programs constitutes a comparable source of environmental data. These documents may be obtained from the Government Publications Section, California State Library, Room 541, Librarian Courts Building, Sacramento, California, 95809.

DWR has published the "Reconnaissance Study of the Natural Resources of the Arroyo Valle Basin, Alameda, and Santa Clara Counties" June 1974. It is essentially a study of soil conditions and land use in the drainage area tributary to the Del Valle Reservoir. DWR also developed data on land use in connection with its groundwater studies.

The State Department of Transportation has developed environmental and land use data in connection with its highway building programs. The Bay Area Air Pollution Control District maintains data on air quality within the basin as part of its area-wide air quality monitoring activity.

ABAG has produced a number of documents on planning, land use and resource assessment. In a joint effort with the Metropolitan Transportation Commission (MTC), they did "Projections of the Regions Future," September 1974. These were forecasts of population, employment and land use based on different assumptions on birth rates and migratory patterns. Other ABAG publications include: "Areas of Critical Environmental Concern," June 1975; "Agricultural Resources Study," August 1969; "Regional Open Space Element," October 1969; and "Physical Resources Study of the San Francisco Bay Area," May 1971. Other ABAG studies investigated specialized aspects of land use and the environment such as the relationships among aviation and airports, housing, civil preparedness, and open space.

The Alameda, Contra Costa, and Santa Clara County Planning Departments have each produced general plans for the unincorporated territory within their jurisdictions. These plans include the following mandatory elements approved, in preparation, or under consideration: Land Use Element, Circulation Element, Scenic Highways Element, Conservation Element, Seismic Safety Element, Safety Element, Noise Element, Open Space Element, and Housing Element.

The three planning departments have prepared or have participated in preparing solid waste management plans and associated environmental impact reports. The Contra Costa County Planning Department has prepared a comprehensive area plan for the San Ramon Valley, located

at the north end of the study area. This plan includes background information on population, community facilities, physical resources, economics, transportation and land use. Filed with that department is a voluminous environmental impact report on an extensive rezoning of over 4,000 acres, a portion of which lies within the study area. That rezoning, of the 4000-acre Black Hawk Ranch, changed the zoning classification from agricultural to residential. The Santa Clara County Planning Department has completed an investigation of land use and soil conditions in an extensive area in the Diablo Range that includes all of the Santa Clara County portion of the study area.

The Cities of Pleasanton and Livermore have completed or are preparing general plans with the same mandatory elements listed above. The City of Livermore, in preparing their general plan, has had land use, geo-physical and environmental information coded by geographic location to permit automated map reproduction of that information.

In 1974, a private land development company, (Las Positas Land Co.), submitted to the Alameda County Planning Commission and Board of Supervisors a proposal for a new town of approximately 9,000 acres on the north edge of Livermore. In support of the proposal, the 79-page report, "Las Positas New Town: Proposed Amendment to the Alameda County General Plan," December 1973, was submitted with supplementary environmental analyses in support of a general plan amendment to accommodate the new town. ABAG also considered the proposal in terms of possible conflicts with the regional plan and produced the "Las Positas Review Report," April 17, 1975.

e. Demography and Economy. The "OBERS Projections of Regional Activity in the US," September 1972, prepared jointly for the U.S. Water Resources Council by the U.S. Department of Commerce, Bureau of Economic Analyses and the U.S. Department of Agriculture, Economic Research Service, present historic and projected counts of population, employment, personal income and earnings-by-industry for multi-county areas covering the country. The smallest area, including the study area, is the 9-county Bay Area.

The U.S. Bureau of the Census decennial census of population and housing presents data by geographic units as small as city blocks. The census tract, a unit containing approximately 4,000 persons, should be most appropriate for aggregating demographic data for the study area. The Census Bureau also puts out 5-year census of manufacturers, of business, of agriculture, of mineral industries, of construction industries, and of governments. These data are reported by county.

The State Department of Finance prepares annual population estimates for cities and counties in California. They also prepare five-year forecasts of population for counties through the year 2020. The State Department of Human Resources Development publishes monthly estimates of employment by industrial category by county.



The ABAG report, "Projections of the Region's Future," referred to above under item (d), Planning, Land Use, and Environmental Resources, contains forecasts of population and four categories of employment. They are listed by several geographic units, three of which are smaller than the county. ABAG has also published, "Population and Labor Force Projections," 1967, "Economic Activity in the Bay Area," August 1970; and "Economic Human Resources Data: Analysis of Sources and Monitoring Procedures," February 1971.

The Alameda County Planning Department publishes annual estimates of population by four planning units, by smaller planning areas, and by cities. They also prepare periodic projections of population by planning units. The Contra Costa and Santa Clara Counties Planning Departments prepare comparable planning unit forecasts.

## 2. Studies and Planning Activities Currently Underway

a. Federal Agencies. The Federal Insurance Administration has contracted with Development and Resources Corporation, Sacramento, for the preparation of a flood insurance study for the unincorporated territory of Alameda County which is limited virtually to Zone 7 territory.

The Geological Survey has been conducting groundwater monitoring in the watershed since July, 1974. They have proposed an expanded program in cooperation with Zone 7 and the local dischargers in the Livermore and Amador Valleys. A staff memorandum, "A Groundwater Monitoring Program for Livermore-Amador Valley, Alameda County, California," January 1975, outlines that proposal. The Soil Conservation Service has under review their, "Soil Survey of Western Alameda County," 1975.

b. State Agencies. DWR has under development a groundwater model for the Livermore, Amador and Sunol Valleys. The model is as yet unverified due to the lack of groundwater data.

c. Regional Agencies. ABAG has recently been designated as the Planning Agency for EPA's Section 208 (PL 92-500) Area-wide Wastewater Management planning. As such, ABAG will be responsible for administering a 4.3 million dollar grant to arrive at an implementable wastewater management plan by 1978 for the 9-Bay Area Counties. That agency has not yet finalized a detailed work plan for the 2-year planning period, but a preliminary budget shows \$1,382,000 for seven management plans to make up an Environmental Management Plan. There will be a plan for: (1) surface runoff; (2) air quality maintenance; (3) municipal wastewater facilities; (4) non-point sources other than surface runoff; (5) industrial discharges; (6) water conservation, reuse and supply; and (7) solid waste. A sum of \$394,000 will be spent on a data base; \$961,000 on regional supporting services; \$345,000 on citizens participation; \$360,000 for plan integration and administration; \$180,000 for special studies; \$165,000 for a contract with the State Water Resources Control Board; \$300,000 for preparation of the work program and initial work; and a \$216,000 contingency fund.

The urban study area is a small part of the 208 planning area. However, the EPA/Corps Interagency Agreement requires that an urban study (with unapproved POS), within a 208 area, must delete wastewater management planning or conduct such planning at the request of (and in accordance with the requirement of) the 208 agency. Such a request has been made by ABAG and is documented in Appendix A.

Since the Livermore-Amador Valley is a critical air quality basin the Bay Area, the Air Pollution Control District maintains a continuing watch on emissions and other air pollution parameters within the airshed. The Regional Water Quality Control Board monitors the quality of receiving waters of the streams in the watershed and the quality of wastewater discharges to those streams.

The Metropolitan Transportation Commission carries on a continuing regional transportation planning process and thereby maintains extensive data files on transportation, land use and economic activity.

d. Sub-Regional Agencies. The Livermore-Amador Valley Water Management Agency, since early 1974, has been engaged in preparing a Section 201 (PL 92-500) facilities plan to serve the interests of the three wastewater dischargers that make up that joint powers agency. Responsibility for administering the planning process was assigned to the Bay Area Sewer Services Agency, a regional agency charged with coordinating wastewater management planning throughout the Bay Area. This planning process is explained in detail in Section II. Stage I STUDY RESULTS, A. STUDY AREA, 2. Description of Study Area, c. Water Resources, 4. Wastewater.

The Alameda County Planning Department has under review two special studies conducted during the past year: the "Solid Waste Management Plan" and the "Riparian Area Management Study -- Including Flood Plain Zoning and Featuring a Specific Plan for Areas of Environmental Significance."

#### F. PUBLIC INVOLVEMENT STRATEGY

1. General. The Upper Alameda Creek Basin Urban Study will include a comprehensive public involvement effort fully integrated with the planning process. For the purposes of this study, the public is defined as any non-Corps of Engineers entity.

2. Objectives. The primary objective of public involvement is to provide sufficient information to the various publics and to obtain from those publics, information, basic data and their views regarding water resources problems, community values and goals, potential alternatives, and assessment and evaluation of alternatives. These publics range from elected officials at all levels to opinion leaders and the public at large.

To accomplish this objective, the public involvement program will provide the necessary vehicles to facilitate a continuous exchange. The study manager will disseminate adequate information at a level of clarity that will assure understanding of the planning process and the technical aspects of the study throughout its duration. There will be a variety of forums for soliciting and receiving public views, desires, and preferences. The public involvement program will, as a minimum:

(a) Present information which will not only assist the public in defining its water resources problems and objectives, but also explain the process by which the Federal Government investigates and resolves water resources problems.

(b) Actively promote effective coordination between the Corps and other Federal, State, and local agencies.

(c) Develop channels of communications through which the public can express its preferences.

(d) Provide structured opportunities for the public to influence the planning process, to identify and resolve local conflicts, and to achieve, if practicable, consensus regarding a course of action.

Citizen input will be sought throughout all phases of the study, but is particularly critical during the initial stages of problem identification and in the concluding stages where selection and refinement of preferred alternatives will take place.

Although there will be a continuing effort to reach as broad a spectrum of the community as possible, ongoing citizen participation will be effectuated through the Citizens' Committee.

3. Selection of Public Involvement Techniques. There are many different techniques available as components of a public information program. Although various platforms will be selected during the course of the study in response to identified needs the vehicle of formal public meetings will be the mainstay. Informal workshops and discussion sessions for decision-makers and community groups will also be held. In addition to the meetings and workshops, creative use of the news media will be made to ensure their understanding and proper presentation to the public of the study progress.

Techniques will certainly include, but will not be limited to (1) periodic and/or special brochures, (2) a speakers' bureau, (3) exhibits in conjunction with libraries, schools, county fairs, bank lobbies, etc., (4) local radio and television programming, (5) newspaper articles, features, and advertisements, (6) field trips to potential project sites and special interest areas, (7) public opinion sampling, and (8) periodic status reports.



A periodic status report titled the "Upper Alameda Creek Water Resources Review," will receive extensive local distribution as well as distribution to pertinent Federal, State, and regional agencies. From time to time, articles from participating agencies such as SWRCB, ABAG, EPA, and Zone 7 will be published.

4. Public Involvement Planning Stages. There is no question of the commitment of the program toward citizen involvement, but the specific techniques, mix of techniques, and timing of their employment will be determined by the needs that arise during the planning process. Conversely, public opinion may cause reordering of study objectives and procedures, since study management will be closely interwoven with the public involvement program.

The public involvement planning stages when viewed as a process may be defined as a "continuing" or continuous interaction between the planning agency and the public. This continuum is included in the "Work Sequence Diagram" presented on the last page of this document. This illustration depicts the detailed implementation program for the public involvement strategy.

Since the notice of the initiation of the study two public meetings have been held: 9 July 1975 and 20 January 1976 and three more are anticipated: November 1977, August 1978 and September 1979. The policy formulation body for the Urban Study, the Management Task Force (MTF), met on 13 November 1975 and 12 May 1976 and is tentatively scheduled to meet in November 1976, October 1977, July 1978 and March and August 1979 at a minimum. The recently formed Citizen's Committee (CC) has met three times to review the draft Plan of Study: 3 December 1975, 16 December 1975 and 14 January 1976. This group, as will the MTF, should meet in the future on a need basis but is expected to meet in October 1976, October 1977, June 1978, February 1978 and July 1979. In addition to these public forums, status reports describing progress to date will be sent to the general public and the news media. A series of workshops, or technical sessions are anticipated between Corps planners and other agency and public representatives. These workshops are depicted on the "Work Sequence Diagram" as occurring in January 1977, June 1978 and April 1979 but in all likelihood will convene on a much more frequent basis. A summary of the business conducted in the public meeting, MTF and CC meetings cited above can be found in the Section titled, "STAGE 1 PUBLIC INVOLVEMENT" found later in this document.

5. Identification of Publics. Identification of the various publics, particularly those likely to be affected, is critical to effective planning. Every effort will be made to insure that certain key groups and individuals are identified and encouraged to participate. Particular attention will be given to special interest groups and those segments of the unorganized public who may become actively involved only

after it is evident what will be the immediate impacts of alternative plans. Early emphasis will be placed on obtaining input from representative segments of the public including the agricultural and academic communities. As the study progresses, the list of public participants will be reviewed, modified and/or expanded as necessary to serve the best interests of the local area and the Bay region.

Zone 7 has assisted in the identification of members of the Citizens Committee. Zone 7 has taken the lead in establishing and coordinating the activities of this group. The CC membership list will also serve to identify those public interest groups who may be affected later in the study, and those who can make valuable contributions to the study early in the problem identification and solution implementation phases (i.e., acceptable alternatives).

The Citizens' Committee has been structured in such a manner as to insure that a wide range of interests are represented. Environmental, civic, business, professional, community, and other public interest groups have been brought together so as to insure that the best possible combination of interests has been and will be asked to take an active role in this study.

The more formal interagency coordination effort and description of the various task forces and work committees is presented later in this report (See "Study Management").

#### G. INSTITUTIONAL ARRANGEMENTS

Public agencies with authority over and responsibility for the water resources of the area are inter-related. In some cases, jurisdictions duplicate functions. In other cases, there is a real overlapping by jurisdictions. A summary and analysis of these jurisdictions arranged by functional responsibilities, is addressed in the following paragraphs.

1. Flood Control. Zone 7 is the principle agency responsible for flood control policy in the basin. The Del Valle Reservoir, principally a water supply facility managed by the State Department of Water Resources, also provides flood protection on Arroyo del Valle. The Army Corps of Engineers, a Federal agency with responsibility for flood control in authorized projects, contributed \$4,080,000 toward the construction costs and \$776,000 toward operation and maintenance for 50 years. Those amounts were considered to be the flood control share of total costs for the dam and reservoir.

2. Water Supply and Quality. Three levels of government and the private sector are involved in this functional area. The State Department of Water Resources (DWR) provides imported water to the study area by means of the South Bay Aqueduct. That aqueduct transports water from the California Water Project facilities in the San Joaquin Valley

to water wholesalers in the South San Francisco Bay Area, principally Santa Clara Valley. The Del Valle reservoir, within the basin, is the principal regulating reservoir for that aqueduct. DWR has also made investigations of the ground water supply in the basin as part of its on-going assessment of water resources in California.

The State Water Resources Control Board (SWRCB) is the parent state agency responsible for enforcing the state water quality standards for receiving waters affected by waste discharges. Assisting the State Board in that effort are nine regional water quality control boards. The Regional Water Quality Control Board (Region 2) sets water quality standards for the Alameda Creek watershed. It sets requirements, and grants or denies permits to all dischargers to streams in the watershed as well as other streams in the region.

The State Department of Health-Water Sanitation Section (SDH) is responsible for the regulation of the quality of surveyed drinking water for systems with 200 or more connections.

Zone 7 purchases Del Valle water from the State and sells it on a wholesale basis to retailers within the basin. The cities of Livermore and Pleasanton, the Valley Community Services District, and the privately-owned California Water Service Company purchase water from Zone 7 and maintain the distribution systems necessary to deliver water to residents of the Alameda County part of the basin. The East Bay Municipal Utilities District is the water retailer in the Contra Costa County part of the basin. Residents of the Santa Clara County portion obtain their water from individual wells.

As water supplier to valley users, Zone 7 is also responsible for water quality. Current practices show that Zone 7 concentrates on monitoring ground water quality while the Regional Board takes responsibility for the quality of surface flows. The two municipalities and the community services district, in their capacity as wastewater management agencies, are subject to discharge requirements of the Regional Board and Zone 7.

The Alameda County Health Care Services Agency - Division of Environmental Health is responsible for the regulation of the quality of surveyed drinking water for systems not regulated by the State Department of Health.

3. Wastewater Management. The State Water Resources Control Board bears the most responsibility and authority for bringing wastewater treatment practices up to standard. Under the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500), the state governors are to be given authority for administering the National Pollution Discharge Elimination System; for preparing basin plans; and for designating area-wide planning areas and planning agencies for wastewater management



planning. EPA reviews state standards and in some cases sets standards and provides grants to the designated agencies to administer their water pollution control programs. These included funding for planning and constructing water pollution control facilities. The Governor of California designated the State Board to administer the programs authorized by PL 92-500. The State Board employs regional water quality control boards to implement those programs. The Region 2 Regional Water Quality Control Board (RWQCB) was given responsibility to assure that requirements on local discharges in the Upper Alameda Creek Basin are met.

Additionally, the State Legislature has created the Bay Area Sewer Services Agency (BASSA), a regional agency with authority to plan, construct, and operate sewage treatment facilities where that job is not being adequately performed by local wastewater management agencies. ABAG was recently designated by SWRCB and EPA as the area-wide wastewater management planning agency for the San Francisco Bay Area under Section 208 of PL 92-500. Zone 7 has the legal powers to perform and implement overall water quality management plans within their area of jurisdiction but has never chosen to exercise those powers, deferring it to the three local agencies operating waste treatment plants.

The cities of Livermore and Pleasanton and the Valley Community Services District (VCS D) all operate waste treatment plants and, in January 1974, formed a joint powers agency called the Livermore-Amador Valley Wastewater Management Agency (LAVWMA). That agency was formed to effect a cooperative solution to a wastewater disposal crisis which resulted in restrictions against authorizing further sewer system hook-ups by two of the dischargers. Since then, LAVWMA has developed and obtained approval from the RWQCB of a plan to jointly undertake wastewater management for the urbanized areas under jurisdiction of its three member agencies.

Additional, on 13 May 1975, the Alameda County Board of Supervisors recognized Zone 7 as the "most logical agency to serve as the overall water quality management planning agency for the Alameda Creek watershed above Niles Canyon. This area excludes the area being planned for by LAVWMA." They urged the Zone 7 Board of Directors to assume responsibility for same and to coordinate such planning with the plans developed by LAVWMA for the treatment and disposal of sewage from its member agencies.

The RWQCB, on 19 August 1975, passed a resolution concurring with the Board of Supervisors in the aforementioned recognition of Zone 7. It further urged Zone 7 to proceed with total water quality management planning for the entire watershed above Niles Canyon. This included entering into any necessary agreements or contractual relations with agencies such as the Corps of Engineers, LAVWMA, Contra Costa and Santa Clara County, and the area-wide Section 208 planning agency.

4. Water-Oriented Recreation. Recreational services are provided in the study area by a regional special district, sub-regional (or local) special districts, a county-level agency and a municipality.

The East Bay Regional Park District provides passive recreation services at large regional parks throughout Alameda and Contra Costa Counties. Passive recreation includes those activities done on relatively wild, pristine or undeveloped land such as hiking, picnicking, bird watching, etc. They operate the Sunol Valley and Del Valle Regional Parks within the basin. The District owns additional land in the basin being held for future park development. They have an on-going planning function, to provide designs for recreational use of significant land and water resources.

Zone 7 also has legal powers to provide recreation services but has never exercised them except to grant easements on their holdings and to enter into agreements with other recreation agencies allowing recreation services.

The Livermore Area Recreation and Park District is a local, special district which provides the full range of active recreation services for a service area including the City of Livermore and some unincorporated, un-urbanized territory to the east and south of Livermore. Active recreation includes those activities done at intensively developed small parks in the midst of residential areas such as baseball, touch football, and other programmed activities. Active recreation facilities include swings, slides, teeter totters and other playground equipment. The district also provides some passive recreational services and facilities for residents within its service area.

The Alameda County Health Care Services Agency is responsible for insuring that all public water recreational areas are designed and maintained to protect human health and provide a safe environment.

5. Fish and Wildlife Preservation and Enhancement. To the extent there may be migratory waterfowl or endangered species within the basin, the Federal Fish and Wildlife Service has authority and a responsibility in this functional area. The Federal Bureau of Outdoor Recreation has responsibility for reviewing plans that have recreational impact on fish and wildlife. The State Department of Fish and Game has responsibility for protecting the non-migratory species of fish and wildlife. The office of the State Department of Parks and Recreation responsible for overseeing the California Outdoor Recreation Plan has responsibility for reviewing plans that have a recreational impact on fish and game.

6. Land Use Planning and Controls. Land use control is a police power delegated to the States by the Constitution of the United States and re-delegated, in large measure, by the states to local government. In California, land use controls historically have resided wholly with the counties and municipalities. The counties exercise them in the unincorporated territory and the municipalities have exercised them in incorporated territory.

7. Historic Preservation. It is the responsibility of all water resource planning agencies (Federal, State and local) to coordinate with the State Historic Preservation Officer to determine if there are, within the project area, any sites listed in the National Register of Historic Places or any state historic places therein. That information, together with any archeological surveys that will be required if a project is to disturb new land, will constitute the basic data for the cultural resources sector of the EIS or environmental assessment. The above procedure is mandated by the National Historic Preservation Act of 1966 which also establishes the Advisory Council on Historic Preservation.

#### H. STUDY MANAGEMENT

1. Authority. The District Engineer San Francisco District, Corps of Engineers has the primary responsibility and final authority for the administration and management of the study. The District Engineer will rely on the Urban Study Team, assisted by advisory committees, working groups and contractors to discharge their responsibilities. Close liaison will exist between the District Engineer and the Study Manager so that decisions regarding major changes of effort within the study, and relationships with agencies and public groups can be expedited.

2. Study Team Organization. The following individuals are assigned to participate in the Upper Alameda Creek Urban Study:

		Phone - (415)
Urban Study Section Chief	Jacob Harari	556-4833
Study Manager (Urban Planner)	Ben Wells	556-2314
Plan Formulation and Impact Assessment and Evaluation (Environmental Resources Planner)	Scott Sollers	556-4346
Technical Systems Design (Sanitary Engineer)	Wayne Olsen	556-8870
Public Involvement and Institutional Analysis (Public Information Specialist)	Frank Rezac	556-8870
Flood Plain Management	Ed Davies	556-8870
Hydraulics and Hydrology	Al Schultz	556-3115
Environmental	Robin Mooney	556-6665
Fish and Wildlife	Rod Chisholm	556-8240
Geology/Ground Water	Ted Coffman	556-5297



Design	Kenneth Kuhn	556-8550
Economics	Frank Andres	556-4380
Secretary	Ethel McClelland	556-4833

The Study Manager will be assigned to the Study full time. Other members will be utilized as needed.

3. Liaison with Other Federal and Non-Federal Agencies. The documentation of the liaison between the Corps and those agencies that have direct or indirect water resources responsibilities in the study area is listed in Appendix C. Only significant meetings and correspondence are listed. Additional contact with the public is cited in the Section Plan of Study Coordination. Since the POS does not represent a feasibility report nor a construction grant request, the final version will be submitted to the State Clearinghouse for information purposes only.

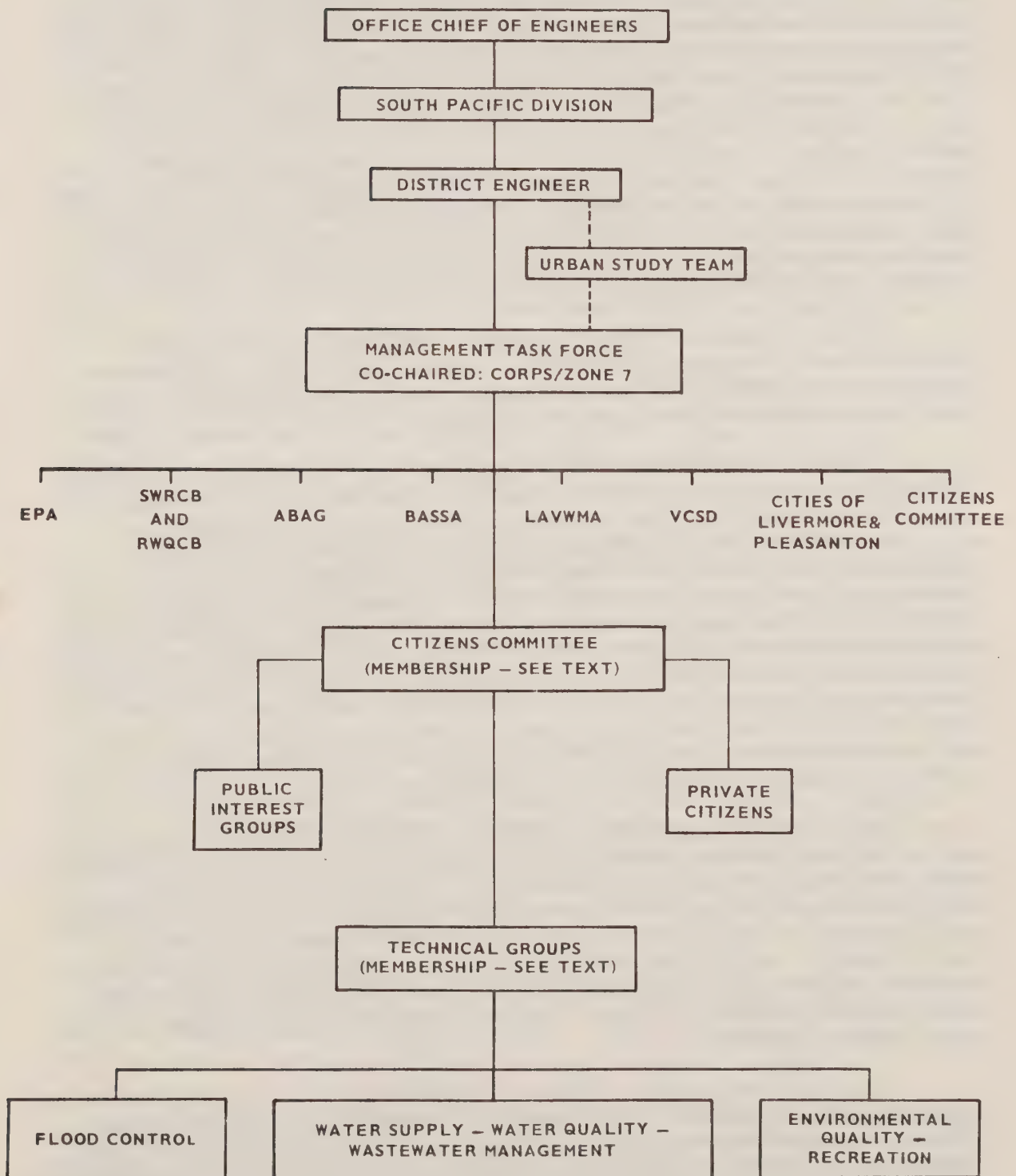
4. Coordinating Committees. On September 5, 1975, the Corps transmitted a letter to Zone 7, the local sponsoring agency for the Urban Study, which proposed coordinating committee type and structure. These proposals have been agreed upon and constitute the framework for the Study's Public Involvement Strategy.

Three committee types are proposed. These include: (a) a Management Task Force (MTF), composed primarily of representatives of the major agencies charged with water resources responsibilities; (b) a Citizens Committee (CC) composed of concerned citizens and representatives of special interest groups; and (c) technical groups formed to deal with specific problem areas such as flood control or water quality. Figure 4 depicts the relationship of these committees and the flow of information to the Corps of Engineers Headquarters.

a. Management Task Force. The Management Task Force is advisory in nature and will make recommendations to the District Engineer for his consideration. Implementation of any recommendations from the group will remain the District Engineer's responsibility. Recommendations and other expressed opinions will be recorded and made available to the public. The Management Task Force will be co-chaired by the Corps and Zone 7.

Zone 7 was established by the State Legislature in 1949 as a means to solve flooding, drainage, water supply and water conservation problems. The district is governed ex-officio by the Alameda County Board of Supervisors.

UPPER ALAMEDA CREEK URBAN STUDY  
ORGANIZATION CHART



Zone 7 encompasses all of the Alameda County portion of the Study area. It is unique in that it is governed by a separate elected board. This feature was established in 1957 when a popular vote by the residents of the area expressed their desire for more local control of the development of the Alameda Creek watershed above Niles. The seven directors of the Zone 7 Board are elected at large throughout the zone, each for a four year term. Three of these directors, Messrs. David W. Harris, Robert C. Becker and Harlan H. Zodtner have been designated as members of a Zone 7 - Army Engineer Liaison Committee. It is the intent of Zone 7, through this committee, to enthusiastically function as the lead agency for coordination with local valley agencies and citizenry to provide guidance to the Corps in the conduct of the study covering management of water resources and related matters.

Another member of the Management Task Force is the Environmental Protection Agency, the Federal agency specifically charged with reinforcing the efforts of other agencies in the development of water quality and wastewater management systems.

Other positions will be occupied by the State Water Resources Control Board (SWRCB) and the San Francisco Bay Regional Water Quality Control Board (RWQCB). The State Water Resources Control Board was established by the State Legislature in 1967 by consolidating the functions of the former State Water Rights Board and the State Water Quality Control Board. The work of the five-member State Board is divided into three areas: water rights, water quality and planning, and research. The water rights functions of the SWRCB include licensing the appropriation of water to be put to beneficial use. The water quality functions include the control and prevention of water pollution and the enhancement of water quality. Advance planning and research are essential in carrying out these functions. The board also has separate staffs for legal and administrative functions.

The State Board guides the nine California Regional Water Quality Control Boards, enabling State policy for water quality control to be administered regionally yet within a framework of statewide coordination and policy. The powers and responsibilities of the SWRCB were expanded in 1970 with the enactment of the Porter-Cologne Water Quality Control Act by the State Legislature. This act, which is one of the most comprehensive state water quality control laws in the nation, substantially revised the State's water objectives by exercising its water rights functions.

The new law enlarges the term "beneficial uses" of California's waters to include aesthetic enjoyment and preservation and enhancement of fish, wildlife and other aquatic resources or preserves. This marks a major departure from most existing regulatory statutes. It recognizes a new environmental awareness and growing public concern over the water resources of California.



The Regional Water Quality Control Board provides the local implementation mechanism for California's water quality control program. The regional board whose boundaries are based on major watershed areas, is a regulatory agency. The board formulates water quality control plans (which must be approved by the State Board) for the waters of its region, establishes and enforces waste discharge requirements, and implements policies of the State Board.

Under the Porter-Cologne Act, the regional board is able to enforce waste discharge requirements without having to show the existence of a condition of pollution or nuisance. If a discharge violates requirements or threatens to cause pollution, the regional board may issue a cease and desist order and require a time schedule for compliance. Many such actions have been taken in the San Francisco Bay Region in the past two years.

The regional board carries on programs of compliance surveillance and basic data gathering. In the San Francisco region, the information gathering program is conducted by the board staff and is designed to collect water quality data from receiving waters for purposes of planning and evaluation of long-term trends in water quality.

The Association of Bay Area Governments (ABAG) is another member of this group. ABAG was formed in January 1961 by a joint exercise of powers act among the county governments in the Bay Area. The ABAG agreement provides that all 91 cities and nine counties of the Bay Area can be voting members. Special districts and other interested units of government can be nonvoting, cooperating members. Eighty-four cities and eight counties are now members, with 16 cooperating members.

ABAG is charged with the responsibility of regional review for Federal grant applications. It is also involved in continuing area-wide transportation planning, regional airport systems planning, community shelter planning, and regional criminal justice planning, in addition to planning for water, sewerage, and drainage development. ABAG is the newly designated Section 208 (PL 92-500) Area-wide Wastewater Management Planning Agency and is now finalizing a detailed work program that will guide the two-year planning process.

The Bay Area Sewage Services Agency (BASSA) is also a member of the MTF. On October 8, 1971, the Governor signed AB2867, creating the Bay Area Sewage Services Agency (BASSA). The first BASSA Board of Trustees was appointed in 1972.

The main function of BASSA is wastewater planning and to assure that needed wastewater management facilities are constructed. It is charged with development and adoption of a regional water quality plan. Accordingly, BASSA cooperates with the State Water Resources Control Board in development of the comprehensive water quality plan for the San Francisco Bay basin, and the completed plan will form the basis of the official BASSA plan.

Powers of BASSA are not limited to planning. If the BASSA plan is not implemented by local or sub-regional wastewater agencies, BASSA is empowered to construct and operate the regional facilities. BASSA could also become involved in construction and operation at the request of local agencies.

BASSA does not replace the San Francisco Bay Regional Water Quality Control Board. The Regional Board continues to set standards and compliance with time schedules, and is responsible for enforcement of the Porter-Cologne Water Quality Control Act.

BASSA is governed by a 21-member board of trustees. The board includes five appointed members each from the counties of Alameda and Santa Clara, three from the City and County of San Francisco, two each from Contra Costa and San Mateo counties, and one each from the counties of Marin, Napa, Solano, and Sonoma. The entire area of the nine counties is included within BASSA.

BASSA is funded by fees equal to a one-half cent ad valorem tax rate from the nine-county area. Such fees can be raised by ad valorem taxes or service charges.

The Livermore-Amador Valley Water Management Agency will be another member of the Management Task Force. LAVWMA is a recently formed (May, 1971) joint power authority of the Cities of Livermore, Pleasanton, and Valley Community Services District (VCSD). It has the authority to plan, design, fund and construct a joint facility program for three agencies. In order to expedite this program, the Agency has contracted for management services with the Bay Area Sewage Services Agency. LAVWMA is administered by a Board of Directors. Each entity appoints two primary directors and one alternate director. The directors are elected members of the governing boards of the three agencies.

The Valley Community Services District (VCSD) is also represented on the MTF. The VCSD covers the Dublin-San Ramon area, operating in both Alameda and Contra Costa County. The District's authorized powers include wastewater collection, treatment and disposal, parks, fire protection, solid waste collection and water supply, although the District's water supply service is limited to Alameda County areas. Contra Costa County lands are supplied by East Bay Municipal Utility District.

A wastewater treatment plant, originally built in 1961, serves the entire sewered area of the District and about half of the City of Pleasanton. The treatment facility has undergone major expansions since 1961. Discharge from the VCSD plant is to the Alamo Canal.

The remaining membership of the MTF will be composed of representatives from the Cities of Livermore and Pleasanton and the Citizens Committee. The present composition of the MTF is as follows:

UPPER ALAMEDA CREEK URBAN STUDY

MANAGEMENT TASK FORCE

Mr. Paul DeFalco, Jr.  
Regional Administrator  
Region IX  
Environmental Protection Agency  
100 California Street  
San Francisco, CA 94111  
415-556-4047

Fred H. Dierker  
Regional Water Quality Board  
1111 Jackson Street  
Oakland, CA 94607  
415-464-1255

Lila Euler, Member  
Boards of Directors  
Valley Community Services  
District and Livermore-  
Amador Valley Water  
Management Agency  
7051 Dublin Blvd.  
Dublin, CA 94566  
415-828-0515

D. Ronald Hyde  
Bay Area Sewage Services Agency  
Hotel Claremont  
Berkeley, CA 94705  
415-548-7600

Joyce LeClaire, Councilwoman  
City of Pleasanton  
200 Bernal Avenue  
Pleasanton, CA 94566  
415-846-3202

Robert H. Lewis  
State Water Resources  
Control Board  
P.O. Box 100  
Sacramento, CA 95801  
415-445-7765 or (8) 465-7765

Helen Tirsell, Mayor  
City of Livermore  
2250 First Street  
Livermore, CA 94550  
415-447-2100

Revan A. F. Tranter  
Executive Director  
Association of Bay Area  
Governments  
Hotel Claremont  
Berkeley, CA 94705  
415-841-9730

James Trimmingham, Chairman  
Citizens Committee  
4419 Second Street  
Pleasanton, CA 94566  
415-846-2101

Harlan Zodtner, Member  
Board of Directors  
Zone 7, Alameda County Flood  
Control & Water Conservation  
District  
399 Elmhurst Street  
Hayward, CA 94544  
415-881-6496



b. Citizens Committee. The Citizens Committee has been formed to provide a forum of private citizens and individuals representing public-interest groups with interests in the subjects to be addressed by the study. The CC will review all aspects of the study on a periodic basis and will make comments to the MTF or the Study Manager as appropriate. The CC will present to the MTF and the Study Manager information concerning their own perceptions of problems and solutions. The committee will take an active role in assessment of alternative solutions to the water resource problems as these solutions are developed in the course of the study.

The CC has already met several times to review and comment on the draft POS (see Stage 1 Public Involvement). The current membership of the CAC is as follows:

UPPER ALAMEDA CREEK URBAN STUDY

CITIZENS COMMITTEE

Name

Representing

Celia Baker  
541 Bell Avenue  
Livermore, CA 94550  
443-4766

Ray Bianchi  
4105 Walnut Drive  
Pleasanton, CA 94566  
846-2352

Charles Bubics  
4137 Walnut Drive  
Pleasanton, CA 94566  
846-2047

John Cronin  
P.O. Box 2001  
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828-6183

Bob Detjens  
5600 Tesla Blvd.  
Livermore, CA 94550  
447-3603

Dagmar Fulton  
P.O. Box 250  
Pleasanton, CA 94566

Social Economic  
Environmental  
Concerns Committee

William J. Gieseler  
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443-6079

James W. Hadley  
4355 Emory Way  
Livermore, CA 94550  
447-2752

Sierra Club/Livermore  
Amador Regional Group

Josephine K. Harding  
P.O. Box 661  
Livermore, CA 94550  
846-5111

American Association of  
University for Women

CITIZENS COMMITTEE  
(Cont'd)

Name

Representing

Clarence Hoening  
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447-0437

Elaine Koopman  
4121 Walnut Drive  
Pleasanton, CA 94566  
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Judy Lougheed  
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443-1384

League of Women Voters

Earl E. Mason  
5181 Diane Ct.  
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Donald G. Miller  
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Pleasanton, CA 94566  
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John R. Payne  
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Daniel Pons  
4242 Vervais Avenue  
Pleasanton, CA 94566  
846-2775



CITIZENS COMMITTEE  
(Cont'd)

Name

Representing

Stanley Rathbone  
325 Ray Street  
Pleasanton, CA 94566  
846-2256

William Raymond  
2368 Buena Vista Avenue  
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447-4027

Valley Ecology Center

E. C. Rundstron  
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George Ruzicka  
4255 Amherst Way  
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447-5521

Don Savery  
6738 Rancho Ct.  
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462-4024

Harry L. Silcocks  
1143 Lambacren Street  
Livermore, CA 94550

Randolph Stone  
725 Geraldine Street  
Livermore, CA 94550  
443-5886

Citizens Advisory Council  
Livermore-Amador Valley  
Area, Alameda County Health  
Care Services Agency

Gil Stratton  
840 Seminole Drive  
Livermore, CA 94550

Bill J. Thompson  
463 So. I Street  
Livermore, CA 94550  
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(8) 209-835-3030

CITIZENS COMMITTEE  
(Cont'd)

Name

Representing

R. W. Tiecke  
P.O. Box 1170  
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447-4900

Mrs. James F. Tracey  
1262 Madison Avenue  
Livermore, CA 94550  
447-0115

James Trimmingham, Chairman  
4419 Second Street  
Pleasanton, CA 94566  
846-2101

Dave Tritsch  
2161 Bluebell Drive  
Livermore, CA 94550

Minnie Vieira  
1820 Hartman Road  
Livermore, CA 94550  
447-8151

Robert Wing  
236 Donner Avenue  
Livermore, CA 94550  
447-5010

Walt Wood  
5284 Northway Road  
Pleasanton, CA 94566  
846-5488

Preserve Area  
Ridgelands Committee

Arroyo Heritage Committee

c. Technical Groups. There will be three (3) working groups or technical groups. These three groups will meet independently of one another or jointly as required. The chairmanship of each group will be decided at the first meeting. These chairman will have the responsibility of briefing the Citizen Committee on the working group's progress at their meeting. Each technical group will have the responsibility of participating in plan formulation and impact assessment of each alternative throughout the planning process. The groups will be made up of technical personnel from agencies with responsibilities in the topical areas dealt with by the groups. The groups will be further composed of individuals with technical expertise who may belong to special interest groups or study groups or may be unaffiliated private citizens. The proposed membership of each technical group is as follows:

1. Flood Control and Flood Plain Management

<u>Federal</u>	<u>State</u>	<u>Local</u>
Dept. of Housing & Urban Development	Dept. of Water Resources	Zone 7
U.S. Geological Survey		Contra Costa County
Soil Conservation Service		Flood Control &
Forest Service		Water Conservation
Corps of Engineers		District
		Santa Clara County
		Water District

2. Water Supply - Water Quality - Wastewater Management

<u>Federal</u>	<u>State</u>	<u>Local</u>
Environmental Protection Agency	State Water Resources Control Board	Association of Bay Area Governments
Public Health Service	Regional Water Quality Control Board	Bay Area Sewage Service Agency
Bureau of Reclamation	State Water Commission	Livermore-Amador
Corps of Engineers	Dept. of Public Health	Water Mgt. Agency
		Zone 7
		Valley Community Services District
		Cities of Livermore and Pleasanton
		East Bay Municipal Utilities District
		San Francisco Water District
		Santa Clara County Water District
		Citizens Council/ Livermore-Amador
		Valley Area
		Alameda County
		Health Care Services Agency



### 3. Environmental Quality - Recreation

<u>Federal</u>	<u>State</u>	<u>Local</u>
Environmental Protection Agency	Dept. of Parks and Recreation	Co. Health Depts. Environmental Health Commission
Bureau of Land Mgt.	Dept. of Fish & Game	Bay Area Air Pollution Control District
Fish & Wildlife Service	Dept. of Natural Resources	Industrial Advisory Committee
Bureau of Outdoor Recreation	Dept. of Conservation	Clean Air Coordination Committee
National Park Service	Air Resources Board	Citizens Air Quality Commission
Bureau of Sport Fisheries and Wildlife		Co. Planning Depts. Cities of Pleasanton and Livermore
Corps of Engineers		Valley Community Services District
		Livermore Area Recreation and Park District
		Valley Ecology Center

5. Review Process. The District Engineer has the primary responsibility for insuring that the Study meets projected time, cost and work effort schedules. The Plan of Study is a dynamic document and as such will be subject to change. Care must be taken, however, to specifically justify alteration to anticipated deadlines. Periodic meetings will be held between the Study Manager and the District Engineer to discuss progress, problems, delays and results.

The Office of Chief of Engineers will hold checkpoint reviews as identified in the study timetable presented in the Work Sequence Diagram.

The Management Task Force members will review the Study progress and recommend changes, additions or deletions to the Study objectives to the District Engineer.

## SECTION III

### STUDY EFFORT ALLOCATION

#### A. MAJOR WORK ITEMS

The total study effort is broken down into five major work items: (1) flood control and flood plain management, (2) water supply - water quality, (3) non-point wastewater management, (4) water-oriented recreation, and (5) fish and wildlife preservation and enhancement.

1. Effort Components. The major work items are broken down into effort components as follows:

- a. Preparation of the Plan of Study
- b. Problem Identification
- c. Formulation of Alternatives
- d. Impact Assessment and Evaluation
- e. Public Involvement and Institutional Studies
- f. Study Documentation and Report Preparation
- g. Study Management

Each component of the process is discussed in the following paragraphs:

a. Preparation of the Plan of Study. This task, now completed, involved the preparation and initiation of a public involvement program, preliminary identification of the needs in the area, identification of work tasks to perform the study, and the preparation of detailed cost estimates and schedules for performing the study. Inter-agency coordination and public involvement activities were an integral and major part of this component.

b. Problem Identification. This task includes evaluation of existing and projected conditions as perceived by Federal, State and local agencies and the public. This effort will provide the necessary data for the formulation of alternatives. The different elements in this task are described below:

(1) Inventory of existing data. This element comprises data gathering efforts, inventory of such data, and evaluation of existing conditions. Subject areas include physiographic features, population and employment conditions, socio-economic conditions, land use conditions, existing institutional arrangements, existing water resource

facilities, non-point discharges, water quality conditions, potential flood damages, water-related recreation, and environmental aspects including natural and mineral resources, fish and wildlife resources, unique biological, geological and botanical systems, and significant historic, architectural, esthetic, and archeological sites.

(2) Analysis of projected conditions. As a prerequisite to plan formulation, projections performed by local, State and Federal agencies and the public will be analyzed and evaluated for the following areas: socio-economic projections; land use requirements by major categories of residential, commercial, industrial, institutional, recreational and agricultural uses; projections of non-point waste discharges and water quality needs; projection of flood damage control needs, projection of water-related recreation demands; and analysis of environmental preservation and enhancement needs.

c. Formulation of Alternatives. Following approval and completion of the Plan of Study, the remainder of the work program will be carried out in two stages. The first stage will provide another iteration of the planning process at a level of detail sufficient to identify problems, to develop alternative programs without detailed engineering or design, and to evaluate them in terms of impacts and costs. Emphasis in this stage will be given to: (1) assuring that the plans address water and water-related problems, issues and concerns and to (2) analyzing the relationships of these plans and issues in a way that will facilitate public decisions regarding the further development of plans. The second or final stage, will provide subsequent iterations of the planning process leading to the presentation of final alternatives. Plans will be developed in greater detail in terms of specifying needs, objectives and alternative plans. During this stage, it is expected that the alternative plans to be considered will have been reduced to a more manageable number. These will be the alternatives to which detailed design and evaluation will be applied. An overview of alternatives which might be considered for each of the study purposes are discussed below:

(1) Flood control and flood plain management. The alternatives to reduce or prevent flood damages will include structural and non-structural measures or combinations thereof. The measures to be considered include specialized land use, zoning regulations, flood insurance and development of floodways, flood proofing, levees, channel improvements, evacuation, detention storage, reservoir regulation and diversions and flood warning systems.

(2) Water supply - water quality. Water supply alternatives that investigate the use of flood waters and stormwater runoff will be developed. Such alternatives will include optimization of existing and planned surface reservoir operating schedules. The quality of the groundwater and its relevance to water supply will be addressed.



Alternatives will include methods to define and reduce sources of TDS build-up in the basins including the effect of septic tanks and industrial washings (sand and gravel operations). Alternative uses of surface flows will be proposed.

(3) Non-point wastewater management. The alternative plans for wastewater management will include management and structural measures to control and treat non-point urban stormwater runoff. Regulations to be studied will include pretreatment requirements, on site control of specific pollutants, on-site retention of stormwater, land application potential and institutional or management practices.

(4) Water-oriented recreation. Alternative means of satisfying this need will be formulated within the framework of alternatives proposed for flood control and water supply purposes. Various measures to be investigated include: further development of existing recreation sites, utilization of flood plain land, development of new sites, and maintenance of water quality adequate for recreational use.

(5) Fish and wildlife preservation and enhancement. The preservation, management and improvement of the fish and wildlife resources are integral with comprehensive water resource planning. The study will analyze methods of relating preservation and enhancement of fish and wildlife resources to the resource being depleted or altered.

d. Impact Assessment and Evaluation. The purpose of impact assessment is to identify and measure the changes expected to result from various alternative plans. Impacts are identified by comparing all the components of an alternative plan to the base condition of the area to determine the economic, social and environmental changes that are expected to occur with the plan. Impact assessment involves the following activities:

(1) Categorizing the sources of impacts such as inputs, outputs and facilities.

(2) Identifying impacts and trace impacts.

(3) Specifying incidences of impacts, including spatial distribution and when they will occur.

(4) Measuring impacts.

The purpose of impact evaluation is to determine how well the alternative plans achieve the planning objectives and how the plans affect other related problems. Evaluation provides the basis for trading off among the alternative plans and is contingent upon reflecting publicly held values to determine which are the beneficial and adverse aspects of each plan. Evaluation involves the following activities:

(1) Categorizing impacts.

(2) Developing National Economic Development and Environmental Quality plans.

(3) Determining the Federal interests.

(4) Applying other Federal, State and local interests evaluation criteria.

(5) Performing trade off analysis, in part through public involvement.

(6) Specifying bases for the next iteration.

e. Public Involvement and Institutional Studies. The public involvement effort involves the development, implementation and monitoring of the Public Involvement program.

The institutional studies analysis is composed of three major task areas as follows:

(1) Establishment of an institutional data base.

(2) Analysis and evaluation of institutional capabilities versus the requirements of an alternative plan.

(3) Presentation of workable alternative institutional arrangements as part of the implementation program.

f. Study Documentation and Report Preparation. The Urban Studies Program Study Report will consist of a Summary Report with Appendices and ancillary documents required to accompany the Study Report. The Summary Report will be a well-illustrated document written for non-technical readers and will be essentially a summary of the plan formulation. The primary appendices will consist of:

Background Information Appendix

Plan Formulation Appendix

Comments Appendix

The Background Information Appendix will provide a discussion of the existing regional profile and the desired future conditions and identification of the specific problems, issues, needs and concerns to which solutions may be addressed.

The Plan Formulation Appendix will address significant regional problems, concerns, issues and planning objectives and formulate alternative urban water resource plans. This appendix will also contain implementation arrangements, a comparison of final alternative plans and

their impact. Throughout the text, all decisions reached will be fully discussed. It will summarize the specialty appendices, which will include Design and Cost, Impact Assessment and Evaluation, Institutional Analysis and Public Involvement appendices.

The Comment Appendix will document the views of interested parties based on their review of the draft Study Report.

The Ancillary documents that will be prepared will include:

(1) Documents prepared during the course of study for public use at public meetings.

(2) Documents prepared for internal review by higher authority.

(3) Documents prepared for coordination and review prior to study completion such as the revised draft environmental impact statement for any aspects of the plan which the District Engineer may recommend for Congressional authorization.

(4) A technical report prepared for ABAG by October 1977 describing results of the Phase I Surface Runoff Analysis.

g. Study Management. This task will involve the management of the overall study effort to insure the efficient conduct and a timely completion of the study. The following functions will be considered to be included in the management task:

(1) Monitoring the progress of the study to insure adherence to the established schedule.

(2) Programming the funds required to accomplish the study, and monitoring the expenditure of funds.

(3) Making necessary arrangements for administrative support for the study.

(4) Selecting and negotiating with architect-engineer firms for technical work to be accomplished by contract.

(5) Making necessary coordination with other District offices and with other agencies and individuals.

(6) Reviewing all products of the study to insure the quality thereof, and to insure conformance with criteria and guidance set forth by regulations and the District.

(7) Preparing correspondence and routine documents.

(8) Preparing final report and appendices.



## B. SCHEDULING OF WORK TASKS

Stages I and II of the study are expected to run for 40 months having commenced in July 1976 and being scheduled for completion in October 1979. Stage I, which culminates in an approved Plan of Study is expected to be completed in July 1976. Stage II, will require approximately two years and should be completed in July 1978. This stage will involve a more thorough analysis of the problems identified, and will result in a preliminary range of solutions in the form of initial plans for study components. During this stage the Phase I Urban Surface Water Runoff study will be completed and a first draft of the background information appendix and the plan formulation appendix will be completed. This stage is longer than normally anticipated due to funding arrangements. Stage III spans approximately 16 months and will involve the coordination of various plan components and the formulation of detailed alternative plans. This stage will culminate in the preparation of the final report. A work sequence diagram is shown as Figure 5.

Throughout these three stages a detailed public involvement program will be conducted. The theme and particulars of this program are described earlier in this document. The main objective of the public involvement program is to provide sufficient information to the various segments of the public and to obtain from the public the input needed to formulate responsive, meaningful alternatives.

## C. STUDY COSTS

The cost summary tables (Tables 12 through 15) show study costs by work item and effort component. Work items as previously defined include: Flood Control, Water Supply and Quality, Non-point Wastewater Management, Water-Oriented Recreation, and Fish and Wildlife Preservation and Enhancement. The effort components include: preparation of Plan of Study, plan formulation and evaluation, study documentation and report preparation, and study management. The total study cost from preparation of the Plan of Study through submittal of the final report to the Office, Chief of Engineers is estimated to be \$1,268,000. Of this amount, \$1,140,000 will be Federally funded by the Corps while the rest will be contributed by local efforts.

The largest work item is Flood Control representing 35 percent of the total study cost. Non-point wastewater management is a close second at 34 percent. Water supply constitutes 19 percent of the total costs while water-oriented recreation and fish and wildlife preservation and enhancement make up 7 percent and 5 percent respectively.

The breakdown of costs for the effort components are 7 percent for preparation of Plan of Study, 79 percent for plan formulation and evaluation, 9 percent for study documentation and report preparation, and 5 percent for study management. Under plan formulation and evaluation, 13 percent of the cost is programmed for problems identification, 25 percent for formulation of alternatives, 30 percent for impact assessment and evaluation, and 32 percent for public involvement and institutional studies.

Total manpower effort is estimated to be 28.2 man-years - 25.4 Federal, and 2.8 non-Federal. One man-year is the equivalent of \$45,000 based on salary and overhead computation.

The schedule of work to be accomplished during the conduct of this study is based on Corps funding allotments of \$75,000 in Fiscal Year (FY) 1976, \$30,000 in the Transition Quarter (July 1976 - September 1976), \$160,000 in FY 1977, \$550,000 in FY 1978, and \$250,000 in FY 1979, for a total of \$1,140,000 including \$75,000 allotted in FY 1975.

The required non-Federal contribution, allocated to the wastewater management component, is \$109,000 (or 25 percent of the total for that item, per Federal policy). This contribution will primarily come from ABAG. For administrative purposes, an additional \$19,000 has been identified and shown in the cost tables as effort sharing by all participating Federal, State, and local agencies for all other functional components of the study. This figure is based on previous experience in such coordinative and cooperative efforts. Although not a program requirement, it appears that this approach to account for such effort is to everyone's best interest.

No actual transfer of funds from non-Federal entities will be involved. This share will be in the form of providing data, technical, review, and miscellaneous services rather than cost contribution.

Aside from basic data assistance and technical review, the local contribution to the wastewater management component will be to investigate secondary impacts of proposed alternative plans.

Summaries of the study costs are presented in the following tables:

Table 12 is a cross tabulation of costs by major work items by effort components.

Table 13 summarizes Federal and non-Federal funds by major work items.

Table 14 summarizes total Federal and non-Federal funds by effort component.

Tables 14a thru 14e lists Federal and non-Federal funds by effort component for each major work item, (i.e. flood control, wastewater management, water conservation, recreation, fish and wildlife).

Table 15 and Tables 15a thru 15f delineate wastewater management costs as required by OCE.









TABLE 12  
(Federal Register Table 2-1)

Total Study Costs by Major Work Item and Effort Component  
((\$1,000))

EFFORT COMPONENTS	WORK ITEMS	Flood Control & Flood Plain Management	Non-Point Wastewater	Water Supply Management	Water Related Recreation	Fish & Wildlife Preservation & Enhancement	TOTAL FOR EFFORT COMPONENT
1. Preparation of a Plan of Study		33.3	32.2	17.4	6.5	4.8	94.2
2. Plan Formulation and Evaluation							
a. Problem Identification		44.5	43.2	23.3	8.6	6.5	126.1
b. Formulation of Alternatives		89.0	86.5	46.5	17.3	12.7	252.0
c. Impact Assessment and Evaluation		107.5	104.5	56.0	20.8	15.3	304.1
d. Public Involvement and Institutional Studies		112.0	109.0	58.5	21.7	16.0	317.2
3. Study Documentation and Report Preparation		40.4	39.0	21.0	7.8	5.7	113.9
4. Study Management		21.3	20.6	11.3	4.3	3.0	60.5
	TOTAL FOR WORK ITEMS	448.0	435.0	234.0	87.0	64.0	1,268.0

Total Study Costs = Corps Costs & Efforts + Other Federal Costs & Efforts + All Non-Federal Costs & Efforts





TABLE 13  
(Federal Register Table 2-2)

Federal and Non-Federal Efforts by Major Work Item

SUMMARY

Major Work Items	Federal		Non-Federal		Total For Major Work Items	
	Man-Years	Cost(\$1,000)	Man-Years	Cost(\$1,000)	Man-Years	Cost(\$1,000)
Flood Control and Flood Plain Management	9.76	439.0	0.20	9.0	9.96	448.0
Non-Point Wastewater Management	7.24	326.0	2.42	109.0	9.66	435.0
Water Supply and Quality	5.09	229.0	0.11	5.0	5.20	234.0
Water-Oriented Recreation	1.92	86.0	0.02	1.0	1.94	87.0
Fish and Wildlife Preservation and Enhancement	1.33	60.0	0.09	4.0	1.42	64.0
TOTALS	25.34	1,140.0	2.84	128.0	28.18	1,268.0





TABLE 14  
(Federal Register Table 2-3)

Federal and Non-Federal Efforts

SUMMARY

Effort Component	Federal		Non-Federal		Total For Effort Component	
	Man-Years	Cost(\$1,000)	Man-Years	Cost(\$1,000)	Man-Years	Cost(\$1,000)
1. Preparation of a Plan of Study	1.89	85.0	0.20	9.2	2.09	94.2
2. Plan Formulation and Evaluation						
a. Problem Identification	2.51	113.0	0.29	13.1	2.80	126.1
b. Formulation of Alternatives	5.03	226.0	0.58	26.0	5.61	252.0
c. Impact Assessment and Evaluation	6.09	274.0	0.67	30.1	6.76	304.1
d. Public Involvement and Institutional Studies	6.33	285.0	0.72	32.2	7.05	317.2
3. Study Documentation and Report Preparation	2.29	103.0	0.24	10.9	2.53	113.9
4. Study Management	1.20	54.0	0.14	6.5	1.34	60.5
TOTAL FOR EFFORT	25.34	1,140.0	2.84	128.0	28.18	1,268.0

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TABLE 14a  
(Federal Register Table 2-3a)

WORK ITEM: Flood Control & Flood Plain Management

Federal and Non-Federal Efforts

Effort Component	Federal		Non-Federal		Total For Effort Component	
	Man-Years	Cost(\$1,000)	Man-Years	Cost(\$1,000)	Man-Years	Cost(\$1,000)
1. Preparation of a Plan of Study	0.73	32.6	0.01	0.7	0.74	33.3
2. Plan Formulation and Evaluation						
a. Problem Identification	0.97	43.6	0.02	0.9	0.99	44.5
b. Formulation of Alternatives	1.94	87.2	0.04	1.8	1.98	89.0
c. Impact Assessment and Evaluation	2.34	105.3	0.05	2.2	2.39	107.5
d. Public Involvement and Institutional Studies	2.44	109.8	0.05	2.2	2.49	112.0
3. Study Documentation and Report Preparation	0.88	39.6	0.02	0.8	0.90	40.4
4. Study Management	0.46	20.9	0.01	0.4	0.47	21.3
TOTAL FOR EFFORT	9.76	439.0	0.20	9.0	9.96	448.0

NOTE: A similar table has been developed for each major work item.



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TABLE 14b  
(Federal Register Table 2-3b)

WORK ITEM: Non-Point Wastewater Management

Federal and Non-Federal Efforts

Effort Component	Federal		Non-Federal		Total For Effort Component	
	Man-Years	Cost (\$1,000)	Man-Years	Cost (\$1,000)	Man-Years	Cost (\$1,000)
1. Preparation of a Plan of Study	0.53	24.0	0.18	8.2	0.71	32.2
2. Plan Formulation and Evaluation						
a. Problem Identification	0.72	32.4	0.24	10.8	0.96	43.2
b. Formulation of Alternatives	1.44	64.9	0.48	21.6	1.96	86.5
c. Impact Assessment and Evaluation	1.74	78.4	0.58	26.1	2.32	104.5
d. Public Involvement and Institutional Studies	1.82	81.7	0.60	27.3	2.42	109.0
3. Study Documentation and Report Preparation	0.65	29.2	0.22	9.8	0.87	39.0
4. Study Management	0.34	15.4	0.12	5.2	0.46	20.6
TOTAL FOR EFFORT	7.24	326.0	2.42	109.0	9.66	435.0





TABLE 14c  
(Federal Register Table 2-3c)

WORK ITEM: Water Supply and Quality

Federal and Non-Federal Efforts

Effort Component	Federal		Non-Federal		Total For Effort Component	
	Man-Years	Cost (\$1,000)	Man-Years	Cost (\$1,000)	Man-Years	Cost (\$1,000)
1. Preparation of a Plan of Study	0.38	17.0	0.01	0.4	0.39	17.4
2. Plan Formulation and Evaluation						
a. Problem Identification	0.51	22.8	0.01	0.5	0.52	23.3
b. Formulation of Alternatives	1.01	45.3	0.03	1.2	1.04	46.5
c. Impact Assessment and Evaluation	1.22	54.9	0.02	1.1	1.24	56.0
d. Public Involvement and Institutional Studies	1.27	57.3	0.03	1.2	1.30	58.5
3. Study Documentation and Report Preparation	0.46	20.6	0.01	0.4	0.47	21.0
4. Study Management	0.24	11.1	0.00	0.2	0.24	11.3
TOTAL FOR EFFORT	5.09	229.0	0.11	5.0	5.20	234.0

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TABLE 14d  
(Federal Register Table 2-3d)

WORK ITEM: Water-Oriented Recreation

Federal and Non-Federal Efforts

Effort Component	Federal		Non-Federal		Total For Effort Component	
	Man-Years	Cost (\$1,000)	Man-Years	Cost (\$1,000)	Man-Years	Cost (\$1,000)
1. Preparation of a Plan of Study	0.14	6.4	0.00	0.1	0.14	6.5
2. Plan Formulation and Evaluation						
a. Problem Identification	0.19	8.5	0.00	0.1	0.19	8.6
b. Formulation of Alternatives	0.38	17.0	0.01	0.3	0.39	17.3
c. Impact Assessment and Evaluation	0.46	20.5	0.01	0.3	0.47	20.8
d. Public Involvement and Institutional Studies	0.48	21.6	0.00	0.1	0.48	21.7
3. Study Documentation and Report Preparation	0.17	7.7	0.00	0.1	0.17	7.8
4. Study Management	0.10	4.3	0.00	0.0	0.10	4.3
TOTAL FOR EFFORT	1.92	86.0	0.02	1.0	1.94	87.0



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TABLE 14e  
(Federal Register Table 2-3e)

WORK ITEM: Fish & Wildlife Preservation & Enhancement

Federal and Non-Federal Efforts

Effort Component	Federal		Non-Federal		Total For Effort Component	
	Man-Years	Cost(\$1,000)	Man-Years	Cost(\$1,000)	Man-Years	Cost(\$1,000)
1. Preparation of a Plan of Study	0.10	4.7	0.00	0.1	0.10	4.8
2. Plan Formulation and Evaluation						
a. Problem Identification	0.14	6.4	0.00	0.1	0.14	6.5
b. Formulation of Alternatives	0.28	12.4	0.01	0.3	0.29	12.7
c. Impact Assessment and Evaluation	0.34	15.0	0.01	0.3	0.35	15.3
d. Public Involvement and Institutional Studies	0.29	13.0	0.07	3.0	0.36	16.0
3. Study Documentation and Report Preparation	0.12	5.6	0.00	0.1	0.12	5.7
4. Study Management	0.06	2.9	0.00	0.1	0.06	3.0
TOTAL FOR EFFORT	1.33	60.0	0.09	4.0	1.42	64.0





TABLE 15  
(Federal Register Table 2-4)

NON-POINT WASTEWATER MANAGEMENT

FEDERAL AND NON-FEDERAL EFFORT  
(SUMMARY)

	<u>Federal</u>		<u>Non-Federal</u>		<u>Total</u>	
	<u>Man-Years</u>	<u>Cost (\$1,000)</u>	<u>Man-Years</u>	<u>Cost (\$1,000)</u>	<u>Man-Years</u>	<u>Cost (\$1,000)</u>
A. Public Involvement Program	0.78	35.2	0.06	11.8	1.04	47.0
B. Data Collection and Projection for Economics, Water Quality, Environmental and Land Use	0.32	14.7	0.11	4.9	0.43	19.6
C. Development of Alternative Plans	2.01	90.2	0.67	30.1	2.68	120.3
D. Evaluation, Comparision and Selection of Alternative Plans	1.80	81.2	0.60	27.0	2.40	108.2
E. Implementation Arrangements, including Institutions Needed for Managing, Financing, Planning, Construction, Operation and Maintenance	1.15	51.6	0.38	17.2	1.53	68.8
F. Report Preparation	1.18	53.1	0.40	18.0	1.58	71.1
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TOTALS	7.24	326.0	2.42	109.0	9.66	435.0



TABLE 15a  
(Federal Register Table 2-4a)

NON-POINT WASTEWATER MANAGEMENT

FEDERAL AND NON-FEDERAL EFFORT  
PUBLIC INVOLVEMENT PROGRAM

<u>Work Element/Description</u>	<u>Responsible Agency *</u>	<u>Cost</u>		<u>Completion Date</u>
		<u>Man-Years</u>	<u>(1,000)</u>	
1. Develop a public involvement program plan	(F) Corps	0.15	7.1	Completed
	(N) Zone 7, ABAG	0.09	3.9	
2. Compilation of mailing list of individuals and organizations	(F) Corps	0.08	3.5	Completed
3. Arrangements for meeting places	(F) Corps	0.08	3.5	On-going
	(N) Zone 7, ABAG	0.08	3.9	
4. Personnel to conduct workshops	(F) Corps	0.08	3.5	On-going
	(N) Zone 7, ABAG	0.09	4.0	
5. Personnel to do work with news media	(F) Corps	0.08	3.5	On-going
6. Preparation of public announcement	(F) Corps	0.08	3.5	On-going
7. Preparation of brochures, newsletters, etc.	(F) Corps	0.08	3.5	On-going
8. Development of plan of study	(F) Corps	0.15	7.1	Jul 1976
TOTALS				
Federal		0.78	35.2	
Non-Federal		0.26	11.8	

\* (F)-Federal (N)-Non-Federal





TABLE 2b  
(Federal Register Table 2-4b)

NON-POINT WASTEWATER MANAGEMENT

FEDERAL AND NON-FEDERAL EFFORT  
DATA COLLECTION AND PROJECTION

Work Element/Description	Responsible Agency	Cost		Completion Date
		Man-Years	(1,000)	
1. Historical and projected population and economic data.	(F) Corps	0.04	1.6	Jan 77
a. Urban and rural population	(N) Zone 7, ABAG	0.02	0.7	
b. Industrial employment by 2 and 3 digit SIC				
c. Agricultural crop acreage and type of cropping				
d. Compare with OBERS projections				
2. Historical and projected water use.	(F) Corps	0.03	1.4	Jan 77
a. Industrial	(N) Zone 7, ABAG	0.01	0.3	
b. Irrigation				
c. Review and adjust where necessary				
3. Historical and projected non-point waste sources showing constituents and concentrations.	(F) Corps	0.04	1.6	Jan 77
a. Industrial	(N) Zone 7, ABAG	0.01	0.4	
b. Irrigation return flows				
c. Oil and gas field operations				
d. Urban and rural storm runoff				
e. Sanitary landfills				
f. Open dumps				
g. Field collection and analysis of water quality data where none available				
4. Existing and projected land use plans.	(F) Corps	0.03	1.5	Jan 77
a. Adopted land use plans	(N) Zone 7, ABAG	0.01	0.5	
b. Best estimates where none exist				





NON-POINT WASTEWATER MANAGEMENT  
FEDERAL AND NON-FEDERAL EFFORT  
DATA COLLECTION AND PROJECTION

Work Element/Description	Responsible Agency	Cost		Completion Date
		Man-Years	(1,000)	
5. Surface water quality data.	(F) Corps	0.03	1.5	Oct 77
a. Description of data needed	(N) Zone 7, ABAG	0.01	0.5	
b. Prepare map showing monitoring stations				
c. List water quality parameters monitored				
d. Inventory existing violators				
e. Identify, locate and obtain additional data				
6. Description of existing stream standards.	(F) Corps	0.03	1.5	Jan 77
	(N) Zone 7, ABAG	0.01	0.5	
7. Water rights criteria or constraints that may affect design or upstream treatment systems.	(F) Corps	0.03	1.5	Oct 77
	(N) Zone 7, ABAG	0.01	0.5	
8. Provide data on existing significant botanical, zoological, archeological and historical watershed features.	(F) Corps	0.03	1.5	Mar 77
	(N) Zone 7, ABAG	0.01	0.5	
9. Review, select and implement a data handling and storage program.	(F) Corps	0.03	1.5	Jan 77
	(N) Zone 7, ABAG	0.01	0.5	
10. Data and inventory assessment.	(F) Corps	0.03	1.2	Nov 77
a. Assess for validity	(N) Zone 7, ABAG	0.01	0.4	
b. Assess for coverage				
c. Determine data gaps				
d. Prepare program for incremental data acquisition				
e. Provide a complete inventory of data source				
TOTALS				
Federal		0.32	14.7	
Non-Federal		0.11	4.9	



TABLE 15c  
(Federal Register Table 2-4c)

NON-POINT WASTEWATER MANAGEMENT

FEDERAL AND NON-FEDERAL EFFORT  
DEVELOPMENT OF ALTERNATIVE PLANS

<u>Work Element/Description</u>	<u>Responsible Agency</u>	<u>Cost</u>		<u>Completion Date</u>
		<u>Man-Years</u>	<u>(1,000)</u>	
1. Identify and designate the non-point wastewater management planning areas.	(F) Corps (N) Zone 7, ABAG	0.41 0.14	18.2 6.1	Oct 76
2. Watershed model.	(F) Corps	0.40	18.0	Feb 77
a. Review, test, select and adopt model	(N) Zone 7,			
b. Adapt, verify and refine model to watershed conditions	ABAG	0.14	6.1	
3. Alternatives to be developed.	(F) Corps	0.40	18.0	Oct 77
a. Develop wastewater management alternatives for each planning area and for the watershed to meet two goals:	(N) Zone 7,			
(1) Highest levels of wastewater treatment	ABAG	0.13	5.9	
(2) Meet current requirements				
b. Alternatives to be developed include the following:	(F) Corps	0.40	18.0	Oct 77
(1) Control programs	(N) Zone 7,			
(2) Treatment systems	ABAG	0.13	6.0	
(3) Combinations of (1) and (2)				
c. Existing non-point wastewater treatment plans will be utilized in developing one or more of the above alternatives	(F) Corps (N) Zone 7, ABAG	0.40 0.13	18.0 6.0	Jul 78
TOTALS				
Federal		2.01	90.2	
Non-Federal		0.67	30.1	





TABLE 15d  
(Federal Register Table 2-4d)

NON-POINT WASTEWATER MANAGEMENT

FEDERAL AND NON-FEDERAL EFFORT  
EVALUATION, COMPARISON AND SELECTION OF ALTERNATIVE PLANS

<u>Work Element/Description</u>	<u>Responsible Agency</u>	<u>Cost</u>		<u>Completion Date</u>
		<u>Man-Years</u>	<u>(1,000)</u>	
1. Assess beneficial and adverse impacts of alternative plans.	(F) Corps	0.60	27.1	Jul 78
	(N) Zone 7, ABAG	0.20	9.0	
a. Economic				
b. Environmental				
c. Social				
d. Water Rights				
e. Institutional/financial capabilities				
2. Compare performance of alternative plans.	(F) Corps	0.60	27.1	Jan 79
	(N) Zone 7, ABAG	0.20	9.0	
3. Present Phase 1 Surface Runoff Plan to 208 planning agency (ABAG).	(F) Corps	0.60	27.0	Oct 77
	(N) Zone 7, ABAG	0.20	9.0	
TOTALS				
Federal		1.80	81.2	
Non-Federal		0.60	27.0	



TABLE 1.e  
(Federal Register Table 2-4e)

NON-POINT WASTEWATER MANAGEMENT

FEDERAL AND NON-FEDERAL EFFORT  
IMPLEMENTATION ARRANGEMENTS

<u>Work Element/Description</u>	<u>Responsible Agency</u>	<u>Cost</u>		<u>Completion Date</u>
		<u>Man-Years</u>	<u>(1,000)</u>	
1. Prepare implementation schedules for each of the wastewater planning areas to meet the highest priority short range watershed goals.	(F) Corps	0.29	12.9	Oct 77
	(N) Zone 7, ABAG	0.10	4.3	
2. Develop and recommend appropriate institutional arrangements for:	(F) Corps	0.29	12.9	Jan 79
	(N) Zone 7, ABAG	0.10	4.3	
a. Administration of control programs				
b. Execution of enforcement methods				
c. Execution of advanced engineering and design and construction				
d. Operation and maintenance				
e. Major replacements				
f. Continuing planning and management responsibility				
3. Develop and recommend financing and cost sharing arrangements.	(F) Corps	0.29	12.9	Jan 79
	(N) Zone 7, ABAG	0.09	4.3	
4. Planning Committee adopts certifiable plan.	(F) Corps	0.28	12.9	Nov 79
	(N) Zone 7, ABAG	0.09	4.3	
TOTALS				
Federal		1.15	51.6	
Non-Federal		0.38	17.2	





TABLE 15f  
(Federal Register Table 4-4e)

NON-POINT WASTEWATER MANAGEMENT

FEDERAL AND NON-FEDERAL EFFORT  
REPORT PREPARATION

<u>Work Element/Description</u>	<u>Responsible Agency</u>	<u>Cost</u>		<u>Completion Date</u>
		<u>Man-Years</u>	<u>(1,000)</u>	
1. Report preparation.	(F) Corps	1.18	53.1	Oct 79
	(N) Zone 7, ABAG	0.40	18.0	
TOTALS				
Federal		1.18	53.1	
Non-Federal		0.40	18.0	









## SECTION IV

### PLAN OF STUDY COORDINATION

The Upper Alameda Creek Urban Study was requested locally by the Alameda County Board of Supervisors. It was then requested by local congressional representatives and approved via congressional resolution (Appendix B). Several representatives in the study area felt that they were not consulted or advised of the impending actions to be taken. It was not until a Corps representative briefed a meeting of the Zone 7 Board that a local agency within the study area had been advised of the upcoming study.

Initial coordination of the Alameda Creek Upper Basin Urban Study started in August 1974. Congressman Fortney H. Stark wrote the Chief of Engineers on 27 August and notified the Corps that the FY 75 Public Works Appropriation Act included funds for a survey and review of the upper basin of Alameda Creek. He asked a series of questions concerning the study scope, limitations, etc. Throughout the remainder of 1974, a series of letters were exchanged between the Corps and Congressman Stark.

Also in August 1974, the Project Director for the Livermore-Amador Valley Water Management Agency (LAVWMA) was notified (by South Pacific Division) that the Corps had been authorized to study the Upper Alameda Creek Basin. The letter outlined those functional areas in which the Corps could be involved and discussed the careful coordination which would be necessary between LAVWMA and the Corps to insure that the Corps study did not duplicate on-going efforts.

Numerous coordination meetings have taken place between Federal, State, and local officials and the Corps since August 1974. These meetings are listed in Appendix C, Liaison with other Federal and Non-Federal Agencies. Described in this section are those meetings in which local agencies were informed about the study and about water resources concerns which should be incorporated into the urban study.

#### A. MEETINGS

1. 1 October 1974 - Representatives of the San Francisco District and the South Pacific Division met with officials of the City of Livermore and the Bay Area Sewage Services Agency (BASSA). The meeting was called by Dan Murphy of BASSA (Mr. Murphy also serves as Project Director of LAVWMA). The purpose of the meeting was to brief the Corps on related activities underway in the study area and to discuss ways and means the Corps study can be coordinated with, and integrated into, the framework of on-going studies.

2. 20 November 1974 - A representative of the District made a presentation to the Zone 7 Board of Directors. His presentation covered what constitutes an urban study, what philosophies govern these studies, and how the Corps undertakes these studies.

3. 14 February 1975 - Chief of the Urban Planning Section San Francisco District and the Urban Studies Program Public Information Specialist, met with the director of the Alameda County Flood Control and Water Conservation District and members of his staff. The urban studies were briefed in general terms followed by a discussion on the specific needs of the study area. Main areas of concern expressed were flood control, flood plain management, and bank and channel stabilization.

4. 25 February 1975 - Chief Urban Planning Section and the Study, Manager, met with administrative officers of the following agencies: Zone 7, BASSA, Valley Community Services District (VSCD), City of Pleasanton, and the City of Livermore. The purpose of the meeting was to get a further determination of local desires with respect to the Alameda Creek Upper Basin Urban Study. Local interests expressed a strong desire against additional point source wastewater management studies as it relates to 201 facilities planning.

5. 4 March 1975 - District personnel met with representatives of BASSA and ACFCWCD. Functional areas where the Corps might make a study effort were discussed.

6. 20 March 1975 - The Chiefs of the Water Resources and Urban Planning Branch and Urban Planning section represented the Corps of Engineers at a meeting of LAVWMA. The following agencies were also in attendance: Environmental Protection Agency (EPA), State Water Resources Control Board (SWQCB), and the Regional Water Quality Control Board (RWQCB). Each agency explained its role in water resources planning and efforts which would be taken to insure that no duplication of effort would take place. LAVWMA was seeking assurances that it would have a voice in the type and amount of planning done in the study area.

7. 8 May 1975 - Members of the Urban Planning Section made a presentation to the Congress of Valley Agencies (COVA). The Corps entry into the field of urban studies was outlined and how we were asked to study the Upper Alameda Creek Basin. The Corps stated that it would, if asked, limit our wastewater management studies to non-point sources of pollution and to meeting the 1983 and 1985 PL 92-500 standards. The City of Pleasanton felt the study was needed and could be a useful addition to their current 201 facilities planning process. Archer Futch, Mayor of Livermore, was pleased the Corps is limiting its examination to non-point source pollution. He had no objection to the Corps studying land application of treated effluents towards meeting the 1983 and 1985 goals of PL 92-500.

8. 20 May 1975 - Members of the Board of Directors Zone 7, met with the District Engineer and his Urban Planning staff. It was decided that Zone 7 will act as sponsor for the urban study, will sponsor the public meetings, will provide names for the mailing list, and will help select a local advisory committee. They briefed the Corps on their legal status in the area and asked a series of questions on groundwater recharge and acceptable standards for water quality.

9. 3 Jun 1975 - A District representative met with Alameda County Flood Control and Water Conservation District officials and discussed major flood problems.

10. 16 June 1975 - District personnel met with the Association of Bay Area Governments (ABAG). ABAG expressed interest in the Corps studies and felt the two agencies should work together.

11. 9 July 1975 - Public Meeting (Discussed later in this section).

12. 13 August 1975 - Meeting with the following agencies: EPA, ABAG, SWQCB, RWQCB. This was a coordination meeting on how the Corps would proceed in light of ABAG's 208 designation. ABAG requested a list of tasks the Corps could do for review. ABAG would study and then respond to the Corps with formal agreements following later.

13. 26 August 1975 - Meeting between District representatives and Zone 7 and the Contra Costa County Flood Control and Water Conservation District to discuss flood problem priorities.

14. 3 October 1975 - District representatives met with ABAG to discuss wastewater management features of Alameda Creek Urban Study.

15. 6 November 1975 - Meeting between urban study staff, Zone 7, USGS and the Department of Water Resources to discuss Alameda Basin Groundwater studies.

16. 13 November 1975 - Initial meeting of the Management Task Force. Due to the extensive local interest in the study, membership was extended to all agencies having planning and/or water management responsibilities in the valley. The agencies attending were: The Environmental Protection Agency (EPA); State Water Resources Control Board (SWRCB); Regional Water Quality Control Board (RWQCB); Association of Bay Area Governments (ABAG); Bay Area Sewage Services Agency (BASSA); the Cities of Livermore and Pleasanton; the Livermore-Amador Valley Water Management Agency (LAVWMA); the Valley Community Services District (VCSD); Zone 7 of the Alameda County Flood Control and Water Conservation District, and the Chairman of the Citizens Committee. A major point of discussion was the Section 208/Urban Study interface. It was suggested that the Corps adjust its submission date for the Plan of Study (POS) to better synchronize the two studies.



17. 3 and 16 December 1975 - Initial meetings of the Citizens Committee. Zone 7 and the Corps worked together in arriving at an initial list of individuals to form the nucleus of the committee. Zone 7 extended the invitations and 27 individuals accepted. David Harris, Chairman of the Board of Directors of Zone 7 opened the meeting and then called upon the study manager. The urban study was explained to the group as well as the role of the Citizens Committee. A question and answer period ensued. Following this, Mr. James Trimmingham of Pleasanton was elected interim Chairman. Each member received a copy of the draft POS for review. The 16 December meeting was in the form of a public workshop sponsored by the committee. The purpose was to question the Corps on the contents of the draft POS. The committee had the document under review for two weeks, and this meeting was used to clarify points and answer questions.

18. 14 January 1976 - Meeting of the Citizens Committee. The purpose of this meeting was to arrive at a committee supported set of recommended changes to the draft report. Individual members dissenting from the majority report were informed that they would have an opportunity to state their position to the Corps at a public meeting scheduled on the draft POS to be held on 20 January 1976. The committee supported recommendations were as follows:

Flood Control: The committee accepted the proposals as outlined with the recommendation that for flood control purposes, the highest priority be given to those alternatives which will maintain the arroyos in their natural state and the lowest priority be given to concrete channels.

Water Supply: These proposals were accepted with the request that the Corps coordinate with the various water resource agencies to determine data needs and to formulate research into the details of groundwater recharge along stream courses of Arroyo Del Valle and Arroyo Mocho.

Water Quality: These proposals were accepted with the recommendation that the study should include the comprehensive study of demineralization of the source water, the wastewater treatment, and the disposal of the wastewater in the study basin.

Wastewater Management: These proposals were accepted with the recommendation that the Corps add the language to the POS that the Corps will not study sewage treatment plants and will accept the 201 Facilities Plan as a base condition.

Water-Oriented Recreation: These proposals were accepted with the exception that water-oriented recreation studies be limited to those reaches along presently owned public lands.

Air Quality: These proposals were accepted with the provision that the comparative reference be eliminated from the final POS.



19. Subsequent to the 20 January 1976 public meeting, numerous staff level meetings were held between representatives of the Corps, ABAG, Alameda County, and other interested individuals and agencies. Study procedures, priorities, and specific area of investigation were discussed to insure a smooth interface with on-going efforts.

20. 28 April 1976 - A meetings was held with ABAG, the Corps, Alameda County Subcommittee for 208, and LAVWMA in attendance. The purpose of the meeting was to coordinate a non-point urban surface runoff study for the Corps. An agreement was reached with all parties resulting in a formal request from ABAG that the Corps conduct a non-point surface runoff investigation for the Livermore-Amador Valley.

21. 12 May 1976 - The second meeting of the Management Task Force was held. The main purpose was to coordinate the Corps non-point surface runoff studies.

#### B. SPECIAL NOTICES

The Initiation of Study notice was mailed on 19 March 1975. This was sent to some 700 agencies and individuals. On 9 June 1975, the initial Public Meeting notice was issued. Following the release of these notices, names of concerned individuals and agencies were added to the mailing list. Approximately 56 percent of the mailing list was comprised of individuals and agencies at the county government level or below. On 16 December the notice for the second public meeting was issued. This notice cited specific locations at which the draft Plan of Study was available for public review.

#### C. INITIAL PUBLIC MEETING

The initial public meeting was held on 9 July 1975 at the Rincon Avenue School in Livermore, California. There were approximately 60 people in the audience. The meeting was actually a special meeting of Zone 7, called for the purpose of introducing the study to area residents. A brief synopsis of the written and oral testimony is as follows:

##### 1. Oral Testimony

David S. Julyan - Congressman Stark's Representative: Here to listen...and to insure that the public input from both organizations and individuals plays a viable part in the program and in plans that this Corps study could bring.

Don Finlayson - State Department of Water Resources: DWR is embarking on a study program ... which is to take a fresh look at significant water issues facing California and to suggest specific ways of solving them...Preparation of plan will necessitate close coordination of Federal, State, and local water agencies and the public...Corps should review previous work on water supply, water quality, and wastewater management before proposing additional work on these well-studied subjects. DWR has a groundwater model which can be used.

Vivian Brown - Regional Planner, ABAG: ...Water Resources planning should be conducted as part of a comprehensive planning effort. Coordination theme prevailed throughout her presentation. ABAG hopes Corps proposed Alameda Creek Urban Study...could contribute to the development of an area-wide waste management plan.

William Raymond - Alameda County Environmental Health Citizen Advisory Committee: Submitted a letter asking several questions. Agency views water and air pollution as most serious health hazards facing the valley. Wants the arroyos preserved in their natural state.

Neal Hilliard - Park Planner, Livermore Area Recreation and Park District: Park Department is vitally interested in arroyos; against concrete channels.

Donald Miller - City Councilman speaking as a private citizen: Concerned that urban study is not being sponsored by all local agencies and, in his view, represents a duplication of effort. Major valley problem is excessive urbanization. Adequate water-recreation, fish and wildlife controls. Thinks most people believe that urban study is being pushed by certain members of Board of Supervisors to benefit and subsidize the Las Positas new town project. Recommends (1) no study for 10 years; (2) if study proceeds to eliminate Las Positas new town from study area; (3) have study done under joint supervision of LAVWMA and Zone 7.

Clarence Hoenig - Concerned Citizen: Concerned about possible duplication of effort. Asked a series of questions. Concerned that no "local" agency had requested the Corps of Engineers Study.

Ralph Mitchell - Chairman, Amador-Livermore Valley San and Gravel Study Committee: Primary interest was to have Corps study groundwater table.

Candace Simonen - Livermore Arroyo Study Committee: Explained purpose of study committee and expressed desire that flood control objectives be reached while maintaining arroyos in their natural state as much as possible.

Archer Futch - Mayor, City of Livermore: Strongly urged the maintenance of the arroyos in their natural state. Hopes recreational plans for arroyos be consistent with the various communities general plans. Concerned that the study stay out of point-source pollution.

Joanne Angvick - League of Women Voters: Supports adequate standards and monitoring programs to insure the quality of both South Bay Aqueduct and well supplies.

Michael Wahlig - San Ramon Homeowners Association: His association desired that while we consider such areas as wastewater management and water quality we not fail to recognize the impacts of solutions to these problems on the air quality problems of the area.

2. Written Testimony. Aggregate and Concrete Association: Give consideration to the question of optimum groundwater levels in Livermore-Amador Valley, and the effect this may have on the sand and gravel industry located in that area as well as the effect on the economy and environment of the Bay area.

#### D. SECOND PUBLIC MEETING

The second Public Meeting was held on 20 January 1976 at the Alisal Elementary School in Pleasanton, California. There were approximately 75 people in the audience. A brief synopsis of the written and oral testimony is as follows:

##### 1. Oral Testimony

James Trimmingham - Interim Chairman, Citizens Committee.  
(Mr. Trimmings remarks are contained in paragraph 18, above.)

Archer Futch - Livermore City Mayor, emphasized that air quality is expected to be the limiting environmental constraint for the valley. With air quality limiting the future population, channelization or other structural measures are not needed for the non-urbanized areas of the valley. Maintain the arroyos as natural communication channels. Livermore is opposed to channels within the city and within the Livermore General Plan area. Expressed his appreciation at the agreement between the Corps and the State Water Resources Control Board that the Corps would limit its study of wastewater to non-point pollution sources.

Michael MacCracken - Livermore Area Recreation and Park District, outlined his agency's interest in the recreational aspects of the arroyos. The Park District looks upon the arroyos as a valuable community asset and believes that access to the arroyos should be encouraged.

Bill Thompson - Citizens Committee member, spoke in favor of the Citizens Committee's position in limiting the water-oriented recreation study to those reaches of the arroyos along presently owned public lands.

Daniel Pons - Citizens Committee member, submitted a number of letters protesting recreation along the arroyos, particularly the Arroyo Valle. Private ownership, patrol problems, and an increase of existing problems were the main reasons for opposing recreational development.



Donald G. Miller - Speaking as a private citizen, proposed that the Corps abandon the Urban Study and become a sub-contractor for ABAG's 208 Study for the Bay region. He believed that this would be the most efficient and least costly method to do water management for the valley.

Dagmar Fulton - Social, Economic, Environmental Concern Committee, supported the study particularly for the benefits of the unincorporated areas as the people in those areas are without a voice and have long paid taxes to Zone 7. They are entitled to an unbiased report for whatever their needs may be. Hopes that Corps report will be of benefit to all residing within Zone 7.

Margaret Tracey - Citizens Committee member, supported an investigation of water-oriented recreation along all lands along the arroyos.

There were several other speakers who spoke out against water-oriented recreation along the arroyos. They were particularly concerned about the privately owned reaches.

## 2. Written Testimony

Josephine K. Harding - Stated that she felt that the draft Plan of Study over emphasized the importance of gravel mining and under emphasized the importance of the valley's water basin. Her letter quoted state officials describing the valley's water basins importance. She further pointed out that there are gravel reserved in Napa County.

Lila Euler - Director, Valley Community Services District (VCSD), recommended that the study should not investigate wastewater management. She also pointed out that VCSD had not budgeted any funds to help defray the local costs of the study.

Lila Euler - Chairperson, Livermore-Amador Valley Water Management Agency (LAVWMA), expressed LAVWMA's thoughts that wastewater management or point-source pollution should not be included in the study. The letter pointed out that no funds have been allocated to defray local costs of the Urban Study. LAVWMA also asked the Corps to correct the population projections which were attributed to LAVWMA.

Bette E. Meyer - Congress of Valley Agencies, asked for a clarification of the Corps role in wastewater management and assurances that the Corps would limit its study to non-point sources of pollution.

Harry Silcocks - Livermore citizen, recommended that in addition to alternatives developed to meet the NED and EQ objectives, two other plans should be developed. He further recommended that water-oriented recreation be fully investigated. He objected to some tentative solutions being expressed in the draft Plan of Study.



Ralph C. Bolin - President, Bay Area Sewage Services Agency (BASSA), expressed his agency's interest with the integration of the wastewater management aspect of the Urban Study with the LAVWMA studies. As the LAVWMA plan will not include reuse of wastewater, BASSA recommended wastewater reclamation and reuse and its impact on groundwater quality be investigated.

Four letters were received from land owners in the unincorporated Los Positas Valley. All four writers endorsed the study. They made no specific comments or recommended any changes to the draft POS.

Seven letters were received from individuals residing on Walnut Drive, Stanley Boulevard, and Vervais Avenue in Pleasanton. All seven were against recreational development of the Arroyos.

Letters were also received from the following Agencies:

- State Water Resources Control Board
- ABAG
- Zone 7
- U.S. Fish and Wildlife Service
- U.S. Geological Survey
- Alameda County Health Care Services Agency
- Citizens Advisory Council/Livermore-Amador Valley Area,
- Alameda County Health Care Services Agency

The comments contained in these letters were of a more detailed and technical nature. They have been addressed in earlier portions of this Plan of Study.









APPENDIX A

LETTERS OF ASSURANCE





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

100 CALIFORNIA STREET  
SAN FRANCISCO, CALIFORNIA 94111

Colonel H. A. Flertzheim  
District Engineer  
San Francisco District  
Corps of Engineers  
211 Main Street  
San Francisco CA 94105

JUL 8 1976

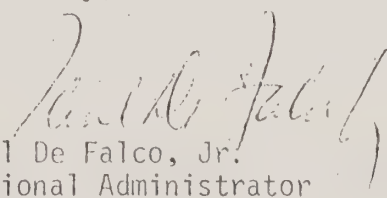
Dear Colonel Flertzheim:

Thank you for your letter of June 25, 1976 transmitting the copy of the final Plan of Study for the Upper Alameda Creek Urban Study.

EPA concurs with the content of the proposed tasks and the coordinated scheduling with the Association of Bay Area Government's Work Program for the Section 208 Environmental Management Plan. I am pleased to see the significant revisions from the December 1975 draft and appreciate the effort put forth to assure no duplication of work between ABAG and the Corps of Engineers.

EPA looks forward to maintaining close contact through the entire Urban Study in the Upper Alameda Creek.

Sincerely,



Paul De Falco, Jr.  
Regional Administrator

cc: Executive Officer, State Water  
Resources Control Board  
208 Project Director, ABAG





## E WATER RESOURCES CONTROL BOARD

P. O. BOX 100 • SACRAMENTO 95801

(916) 445-7765



In Reply Refer  
to: 401:MEB

JUL 29 1976

Colonel H. A. Flertzheim  
Corps of Engineers  
San Francisco District  
100 McAllister Street  
San Francisco, CA 94102

COMMENTS ON FINAL PLAN OF STUDY FOR THE UPPER ALAMEDA CREEK  
URBAN STUDY

Thank you for your letter of June 25, 1976, transmitting a copy of the final Plan of Study for the Upper Alameda Creek Urban Study.

We have reviewed the Plan of Study and concur with the content of the proposed tasks. We have attached some specific comments and, after discussion between our respective staffs, feel confident that our concerns will be addressed. We are pleased to see the significant revisions from the December 1975 draft and appreciate the effort put forth by the Corps of Engineers.

We look forward to working closely with you during the entire study process. Ms. Merry Benard of my staff will continue to serve as the State Board liaison for the urban study.

*for*  
A handwritten signature in cursive script, appearing to read "Bill B. Dendy".  
Bill B. Dendy  
Executive Officer

Attachment



COMMENTS ON  
UPPER ALAMEDA CREEK URBAN STUDY PLAN OF STUDY

<u>Page</u>	<u>Comment</u>
7, par. 2	"The State Water Resources Control Board (SWRCB) has placed constraints on the population levels LAVMA shall use for planning the design capacity of sewage treatment systems, etc." The SWRCB has placed constraints in the <u>funding</u> that will be allowed a project dependent upon the population projections used, however, the SWRCB does not place constraints on population levels to be used in planning.
24, par. 4	The last sentence refers to plants treating wastewater "to meet the SWRCB requirements". This should read "to meet the RWQCB requirements",
30, par. 4	The first sentence refers to the "State of California". This should read the "Department of Water Resources".
36, par. 1	"To determine and provide suitable means of economically and technically achieving levels of nonpoint wastewater treatment to meet PL 92-500 and State water quality standards by the years 1983 and 1985 and maintain those levels in accordance with provisions to be set forth in the ABAG 208 plan".  The last two lines should read: "and maintain those levels in accordance with provisions to be set forth by the San Francisco Regional Water Quality Control Board."
52, par. 6	<u>Regional Agencies</u> . The budget figures for the ABAG 208 planning effort are not accurate with a document publication date in June. A date should be given to reference the data.
57, par. 1	In your document the State Water Resources Control Board is referred to as the parent State Agency responsible for enforcing water quality standards for receiving waters affected by waste discharges and the Regional Water Quality Control Boards are described as assisting the State Board.  The State Board and nine Regional Boards are the principal state agencies with primary responsibility for the coordination and control of water quality throughout the State. Each of the Regional Boards has jurisdiction in that geographic area which comprises one or more of the twelve hydrologic basins of the State. For each such area, the Regional Board is the principal action arm of the <u>State</u> to maintain and control water quality.





## CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

111 JACKSON STREET, ROOM 6040

OAKLAND 94607

Phone: Area Code 415

464-1255



July 7, 1976

File No. 1112.09 (SLP) sag

Colonel H. A. Flertzheim, Jr.  
District Engineer  
Corps of Engineers  
100 McAllister Street  
San Francisco, CA 94102

Dear Colonel Flertzheim:

As you requested, we have reviewed the Plan of Study for the Upper Alameda Creek Basin. We are pleased that one final edition of this document incorporates the revisions requested by the Regional Board and thereby satisfies our major concerns with the POS.

We look forward to working with you as this study progresses. Mr. Griffith Johnston, of my staff will continue to serve as the Regional Board liaison to the urban study.

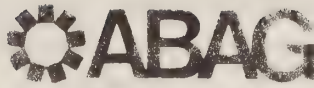
Sincerely,

FRED H. DIERKER  
Executive Officer

cc: Mr. Bill B. Dendy, Executive Officer  
State Water Resources Control Board  
P. O. Box 100  
Sacramento, CA 95801

Mr. James Giannopoulos, Office of  
Planning  
State Water Resources Control Board  
P. O. Box 100  
Sacramento, CA 95801





# Association of Bay Area Governments

Hotel Claremont • Berkeley, California 94705 • (415) 841-9730

June 8, 1976

Colonel H. A. Flertzheim, Jr.  
District Engineer  
San Francisco District  
U. S. Army Corps of Engineers  
100 McAllister Street  
San Francisco, Calif. 94102

Dear Colonel Flertzheim:

Based on discussions with your staff regarding the Draft Plan of Study for the Upper Alameda Creek Watershed, I am pleased to say that ABAG concurs with the content of the proposed work. We are looking forward to cooperating with the Corps and local agencies in the development of a surface runoff plan for the Livermore-Amador Valley that will comprise the wastewater element of the Urban Study.

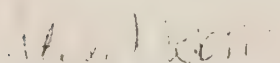
ABAG agrees to commit resources equivalent to approximately \$109,000 over a two-year period for this portion of the Corps study. These will be staff services in the following areas:

1. Problem definition
2. Formulation of candidate solutions
3. Population and land use projections
4. Analytical capability in surface runoff
5. Assistance in identifying secondary effects

More detailed descriptions of the specific ABAG tasks can be developed once the Work Program for the Environmental Management (208) Plan is given final approval. And, it is our understanding that provision of these services would fulfill ABAG obligations to the Corps for this project, including any necessity for administrative or accounting services.

Again, we look forward to working with the Corps. Please contact me or B.J. Miller if you have any questions.

Sincerely,

  
Dean L. Macris

Associate Executive Director







ZONE NUMBER SEVEN OF THE  
ALAMEDA COUNTY FLOOD CONTROL  
AND  
WATER CONSERVATION DISTRICT

399 ELMHURST STREET HAYWARD, CALIFORNIA 94544 846-4457 881-6470

HERBERT G. CROWLE, DIRECTOR OF PUBLIC WORKS  
PAUL E. LANFERMAN, ENGINEER-MANAGER

BOARD OF  
SUPERVISORS  
JOHN D. MURPHY  
1st District  
CHARLES SANTANA  
2nd District  
FRED F. COOPER  
3rd District  
JOSEPH P. BORT  
4th District  
THOMAS H. BATES  
5th District

ZONE NO. 7  
BOARD OF  
DIRECTORS

~~HERBERT G. CROWLE~~  
JOSEPH S. CONCANNON  
~~GEORGE C. LYDIKSEN~~  
GEORGE C. LYDIKSEN  
ROBERT M. PEARSON  
RICHARD W. RYON  
~~ROBERT M. PEARSON~~

July 21, 1976

Archer H. Futch  
Edward J. Kinne  
Gilbert R. Marg

Colonel H. A. Flertzheim, Jr.  
District Engineer, San Francisco District  
Corps of Engineers, U. S. Army  
211 Main Street  
San Francisco, California 94105

Dear Colonel Flertzheim:

The Board of Directors of Zone Number 7 has reviewed your Agency's June 1976 Plan of Study (POS) for the Upper Alameda Creek Urban Study and concurs in the general scope, purpose and objective as outlined. Specific data and projections cited in the POS will be subject to further review and modification by local interests and then modified as appropriate.

The Zone looks forward to working with the Corps as co-chairman of the Management Task Force comprising of various agencies through the Zone's Army Liaison Committee and by membership in the technical groups as outlined.

Very truly yours,

George C. Lydixsen, Chairman  
Zone 7 Board of Directors

GCL:MJM:sf



PO: EDDIV  
781  
LIVERMORE-AMADOR VALLEY WATER MANAGEMENT AGENCY

BERNAL AVENUE • PLEASANTON, CALIFORNIA 94566  
846-3202

LAVWMA

August 11, 1976

Karl F. Schmid, LTC, CE  
Acting District Engineer  
U. S. Army Corps of Engineers  
211 Main Street  
San Francisco, California 94105

Subject: Plan of Study, Upper Alameda Creek Basin California, Urban  
Study

Dear Colonel Schmid:

I have reviewed subject plan of study and find it to be generally satisfactory. There are two items on which the plan touches which should be given greater emphasis, they are:

1. The Corps should not proceed with Phases II and III of the Study without approval of all affected local agencies.
2. The Management Task Force should be convened at critical decision points in the study, for review of: a) agreements with other public agencies; b) criteria for evaluating alternative control measures; c) evaluation of those control measures; and d) plans of study for Phases II and III.

Please be advised that LAVWMA has not appropriated any local funds for inclusion of wastewater management in the Urban Study. These comments have been discussed with the LAVWMA Board of Directors.

If you wish to discuss these comments, please contact me.

Sincerely yours,



LILA EULER  
LAVWMA Representative  
Management Task Force





BAY AREA SEWAGE SERVICES AGENCY

OTEL CLAREMONT • BERKELEY, CALIFORNIA 94705  
(415) 548-7600

bass

July 8, 1976

Karl F. Schmid, LTC, CE  
Acting District Engineer  
U. S. Army Corps of Engineers  
211 Main Street  
San Francisco, California 94105

Subject: Plan of Study, Upper Alameda Creek Basin California, Urban Study

Dear Colonel Schmid:

I have reviewed subject plan of study and find it to be generally satisfactory. There are several items on which the plan touches which should be given greater emphasis. These include:

1. The Management Task Force should be convened at critical decision points in the study, for review of: 1) agreements with other public agencies; 2) criteria for evaluating alternative control measures; 3) evaluation of those control measures; and 4) plans of study for Phases II and III.
2. Investigation of wastewater reuse and its impacts on groundwater is staunchly supported. I am pleased to see that reuse and impacts in specific geographical areas will be considered. This approach will produce usable information.

Very truly yours,

*D. Ronald Hyde*

D. RONALD HYDE, Member  
Management Task Force





## CITY of LIVERMORE

2250 FIRST STREET • LIVERMORE, CA 94550 • (415) 447-2100

August 5, 1976

Department of the Army  
San Francisco District  
Corps of Engineers  
211 Main Street  
San Francisco, CA 94105

Attn: Mr. Karl F. Schmid, LTC, CE  
Acting District Engineer

Gentlemen:

We have your letter of June 25, 1976, in which you transmitted the Plan of Study for the "Upper Alameda Creek Urban Plan." The City Council has some questions about the plan as follows:

1. See Figure 1 (Study Area Map). How was the LAVWMA future service area determined? In Pleasanton, the ridgetops appear to be the criteria, yet, in Livermore the line dips to exclude Las Positas Valley.
2. On Page 9, the Corps refers to "No-growth" resolutions passed by the Livermore and Pleasanton City Councils. What resolutions are referred to by the Corps? The SAVE initiatives, "No-growth" is false and inflammatory wording and should be removed.
3. Table 5 - What are units for evaporation? How can evaporation be greater than precipitation?
4. Page 19 - How was the safe yield of 27,000 acre feet obtained? What is the natural supply?

18,000 AF	Ground water
<u>6,000 AF</u>	Surface water

24,000 AF

27,000 AF minus 24,000 AF equals 3,000 AF. What is the natural supply? How is the ground water supply determined?





Department of the Army  
Page No. 2  
August 5, 1976

5. Table 8, Page 20 - Projected water demand includes the phase-out of agricultural use. This is inconsistent with local government's plans for preservation of the vineyards.
6. Page 19, 4th Paragraph, states that "Further urbanization of the study areas will utilize agricultural land for its purposes and reduce the demand of agricultural uses". It is not necessary to reduce agricultural uses to provide for the projected populations. Populations are easily provided for without phase-out of vineyards or other agricultural uses. Good planning will certainly prevent destruction of vineyards or agricultural lands.
7. Three factors will tend to reduce the water available for population growth. These are:
  - A. Continued agricultural uses in Valley at 10 MGD level.
  - B. Commitment to provide soft, imported water to Pleasanton and VCSD for municipal use.
  - C. LAVWMA pipeline will remove water from the Valley which contributes to the underground water supply at the present time.
8. Page 28 - The Plan states that "Land application of wastewater will require only secondary treatment with chlorination." See Table 2-16 on Page 2-62 of LAVWMA Draft EIS. Nutrient removal is also required by the RWQCB for stream discharge.
9. The Plan of Study should also be consistent with NEPA and CEQA.

It is important that various elements of the Study not proceed into the implementation planning study phase (Phase II) if the Valley interests believe that the results of the Phase I (Definitions of Problems and Alternative Corrective Plans) findings do not justify proceeding with Phase II. Mr. Sollers of the Corps has pointed out several places in the Plan which seems to satisfy that concern and the City's approval of the Plan of Study is based on the satisfaction of that question.

The City approves the Plan of Study, but we ask that the above questions be answered and satisfactorily resolved.

Sincerely yours,

*Helen M. Tirschell*

HELEN M. TIRSHELL





# CITY OF PLEASANTON

AREA CODE 415 846-32

200 BERNAL AVENUE, PLEASANTON, CALIFORNIA 94

July 20, 1976

Karl F. Schmid  
Acting District Engineer  
Department of the Army  
San Francisco District, Corps of Engineers  
211 Main Street  
San Francisco, California 94105

Dear Mr. Schmid:

We have reviewed the final Upper Alameda Creek Urban Study Plan of Study (POS) and concur with the plan as detailed in the June, 1976, POS. Two elements of the POS continue to concern the City of Pleasanton as noted below; however, we feel the latitude of the POS is such that these two study elements can be modified as required as the Urban Study progresses. Specifically, the City of Pleasanton urges that the following planning elements be enlarged:

- 1) agricultural use of water - expand the proposed market analysis to include whether a water irrigation district system would be welcomed if the rapid urbanization of the valley's fringe areas does not take place. (While Pleasanton recognizes that many of these fringe area ranchers/farmers desire urbanization, state legislation and lack of sewage capacity may practically limit such lands to agricultural use. Given this possibility, a study of the potential use of water on these lands would be worthwhile.)
- 2) water - oriented recreation - Pleasanton does not concur that recreation should be relegated to an "after-thought" position; decisions made with respect to flood control and water supply problems should be based in part on recreational goals. Indeed, recreational development of existing and possible future water resources should be a key area of study in its own right.

Since Pleasanton feels that the POS as proposed contains enough latitude to allow these studies, we concur in the overall POS.

Pleasanton would also like to emphasize the following areas of concern to the City (similar concerns were expressed in our February 24, 1976, letter to the Corps which is not recognized in Appendix C of the POS):

- 1) Preservation of the area's streams and channels in a natural state, especially the Arroyo del Valle and Arroyo de la Laguna;





- 2) Maintenance of groundwater movement, levels, and quality;
- 3) Enhancement of both surface and ground water quality, recognizing the continued use of these resources for recreational and domestic uses;
- 4) Utilization of the major arroyos for park and pathway systems
- 5) Protection of existing development from flood damage;
- 6) Maintenance of open space as designated in the General Plan; and
- 7) Protection, where feasible, of prime agricultural land for agricultural use.

Pleasanton is looking forward to taking an active part in the Urban Study in order to reach satisfactory solutions to the water resource problems identified in the POS.

Sincerely,



Joyce LeClaire  
Vice Mayor

JL:pf



APPENDIX B

CONGRESSIONAL RESOLUTION





COMMITTEE ON PUBLIC WORKS  
U.S. HOUSE OF REPRESENTATIVES  
WASHINGTON, D.C. 20515

R E S O L U T I O N

---

Resolved by the Committee on Public Works of the House of Representatives, United States, that the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Alameda Creek, California, published as Senate Document Number 128, 87th Congress, dated September 10, 1962, with a view to determining whether further improvements in the upper basin of Alameda Creek in the interest of flood control, water and wastewater management, and other related purposes, are advisable at this time.

Adopted April 11, 1974

Attest: .....

John A. Blatnik, M.C.  
Chairman



APPENDIX C

LIAISON WITH OTHER FEDERAL  
AND NON-FEDERAL AGENCIES





# APPENDIX C

## Liaison with Other Federal and Non-Federal Agencies

Agency	Significant Date and Type of Contact	Purpose/ Comments	Point of Contact
<u>Federal</u>			
Environmental Protection Agency	20 Mar 75 Meeting	Orientation Mtg.	Andy Mank 415 556-0380
	13 Aug 75 Meeting	Coordination of	
	and 3 Oct 75 Meeting	Wastewater Mgt	
	13 Nov 75 Meeting	Planning. Mgt	
	12 May 76 Meeting	Task Force. MTF Meeting	
Soil Conservation Service	Aug-Sep 75	Obtain soil	Alameda-Bob Roan (415) 447-0749 CCC-Don Krider (415) 682-2266 Santa Clara Lyn Perkins (408) 779-3164
	Telephone	data for all 3 counties.	
Department of Interior USGS	Aug-Sep 75	Investigate	William Brown (415) 323-8111 ext 2328
	Telephone	methods for est. Urban Area Runoff.	
	4 Nov 75 Meeting	Inves. Ground- water Research	Loren Young (415) 323-8111
Department of Interior, Bureau Indian Affairs	3 Apr 75	Bureau has no lands in Study Area.	N/A
Department of F&W Service	19 Mar 75 Letter	Service expressed interest in Study.	G. Ging
National Aero- nautics & Space Administration	21 Aug 75 Meeting	Investigate use of remote sensing in inventories.	Vince Solomonson (301) 982-6481
State Water Resources Control Board	18 Mar 75 Letter	Letter of Under- standing co-signed by State and Corps.	Tom E. Bailey (916) 322-4501
	20 Mar 75 Meeting	Orientation Meeting	
	13 Aug 75 Meeting	Coordination of Waste- water Plng. in Area.	

# APPENDIX C

## Liaison with Other Federal and Non-Federal Agencies

Agency	Significant Date and Type of Contact	Purpose/ Comments	Point of Contact
<u>State</u>			
State Water Resources Control Board	18 Mar 75 Letter	Letter of Under- standing co-signed by State and Corps.	Tom E. Bailey (916) 322-4501
	20 Mar 75 Meeting	Orientation Mtg.	
	13 Aug 75 Meeting	Coordination of Wastewater Plng in Area.	
	13 Nov 75 Meeting 12 May 76 Meeting	Mgt. Task Force. MTF	
Department of Water Resources	9 Jul 75 Meeting	Provided input on groundwater of Study Area.	Don Finlayson (916) 322-6220
	19 Jul Letter	Expressed interest in Study.	
	6 Nov 75 Meeting	Inves. Groundwater Model.	
California Water Service Co.	13 Mar 75 Letter	Expressed interest & cooperation in Study.	E. L. Saxe (408) 298-1414
Department of Fish & Game	16 Apr 75 Letter	Will provide input on fish and wild- life of various reservoirs.	Jack C. Fraser
Department of Conservation, Div of Mines & Geology	16 Apr 75 Letter	Listed available information for watershed.	Richard M. Stewart
Department of Health	24 Apr 75 Letter	Expressed concern over groundwater Quality.	Richard J. Hee
Office of Plan- ning & Research Reg'l and Local	15 May 75 Letter	Certified State review of Corps grant application.	N/A

# APPENDIX C

## Liaison with Other Federal and Non-Federal Agencies

Agency	Significant Date and Type of Contact	Purpose/ Comments	Point of Contact
<u>State (Cont'd)</u>			
Regional Water Quality Control Board	13 Mar 75 Letter	Listed related studies.	Griff Johnston
	16 Apr 75 Letter	Recommended coordination.	
	13 Aug 75 Meeting	Assisted in coordination of waste-water studies.	
	13 Nov 75 Meeting	Mgt. Task Force.	
	12 May 76 Meeting	MTF	
<u>Regional &amp; Local</u>			
Association of Bay Area Governments	21 Mar 75 Letter	Est coordination.	George Hagevik (415) 841-9730
	13 Aug 75 Meeting	Coord to est roles for Sec 208 effort.	
	5 Sep 75 Meeting and	Outlined areas of Corps participation	Paul Wilson (415) 841-9730
	3 Oct 75 Meeting	in Sec 208.	
	13 Nov 75 Meeting	Mgt. Task Force.	
	14 Nov 75 Meeting	Discuss Info. Systems	
	28 Apr 76 Meeting	WWM Mtg.	
	12 May 76 Meeting	Mgt. Task Force.	
Zone 7 of the Alameda County Flood Control and Water Conservation District	20 Nov 74	Orientation Briefing.	Mun J. Mar (415) 881-6496
	15 Apr 75 Resolution	Alameda County Board of Supv desig Zone 7 as Study's local sponsor.	
	22 Apr 75 Letter	Requested coord; provided areas of interest.	Jack Lindley (415) 881-6496
	30 May 75 and	Discussion of water related problems in watershed.	
	26 Aug 75 Meetings	Corps proposed committee structure for public involvement.	
	5 Sep 75 Letter	Discuss riparian legislation.	
	1 Oct 75 Meeting	Alameda Groundwater	
	6 Nov 75 Meeting	Mgt. Task Force.	
	13 Nov 75 Meeting	WWM Mtg.	
	28 Apr 76 Meeting	Mgt. Task Force.	
12 May 76 Meeting			

# APPENDIX C

## Liaison with Other Federal and Non-Federal Agencies

Agency	Significant Date and Type of Contact	Purpose/ Comments	Point of Contact
<u>Regional &amp; Local</u> (Cont'd)			
Bay Area Sewage Services Agency	1 Oct 74 Meeting	Address Study	Dan Murphy (415) 548-7600
	Numerous addi- tional informal contacts.	Objectives.	
	12 Mar 75 Letter	Requested Infor- mation.	
	20 Mar 75 Meeting	Orientation Briefing.	
	13 Nov 75 Meeting	Mgt. Task Force.	
Livermore-Amador Valley Water Mgmt Agency	25 Mar 75 Letter	Requested to be party to any	Dan Murphy (415) 548-7600
		formal agreement.	
	22 Apr 75 Letter to Corps	Listed subject areas to be investigated in Urban Study.	
	25 Jul 75	Cited progress on local Sec 201 plan.	
	13 Nov 75 Meeting	Mgt. Task Force.	
	12 May 76 Meeting	MTF	
East Bay Regional Park District	17 Mar 75 Letter	Expressed interest; Jerry D. Kent cited recreational jurisdiction.	Ms. June Miller (415) 531-9300
	4 Jun 75	Field trip to examine property for recreational potential.	
Livermore Area Park and Recrea- tion District	12 May 75 Letter	Cited concern to preserve Arroyos.	Neil Hilliard (415) 447-7300
Valley Community Services District	6 Mar 75 Letter	Reported position to object to Corps wastewater component.	Paul Ryan (415) 828-0515
	21 Mar 75 Letter	Referred Study's review to Congress of Valley Agencies.	
	12 May 76 Meeting	Mgt. Task Force.	



# APPENDIX C

## Liaison with Other Federal and Non-Federal Agencies

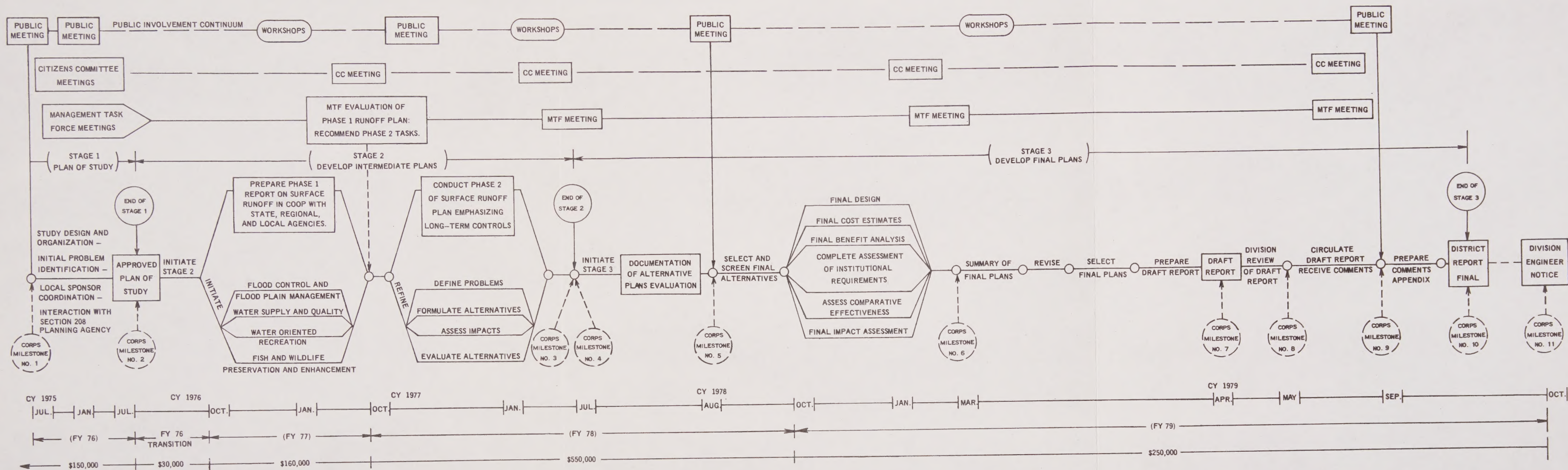
Agency	Significant Date and Type of Contact	Purpose/ Comments	Point of Contact
<u>Regional &amp; Local</u> (Cont'd)			
Congress of Valley Agencies	17 Apr 75 Letter	Requested Corps to make presentation.	Betty E. Meyer (415) 447-2100
Contra Costa County Flood District	3 Jun 75 and 26 Aug 75 Meetings	Discussed CCC flooding.	Robert Connor (415) 228-8300
Alameda County Planning Department	2 Sep 75 Meeting and Telephone Conversation	Discuss planning objectives and previous studies	Betty Croly (415) 357-0844
	1 Oct 75 Meeting	Discuss riparian legislation.	William H. Fraley (415) 881-6401
	15 Oct 75 Letter	Position on rip- arian legislation.	
	29 Oct 75 Meeting	Review avail environ. data.	
Contra Costa County Planning Department	3 Jun 75 Meeting	Obtained infor- mation on CCC planning activ- ities.	Katherine Robinson and Jim Cutler (415) 373-2035
Santa Clara County Plan- ning Department	Informal telephone conversations	Obtained infor- mation on SC plan- ning activities.	Don Weden (415) 299-2521
Alameda County Water District	7 Apr 75 Letter	Outlined area of responsibility.	Earl Lenahan (415) 797-1970
San Francisco Water Department.	4 Apr 75 Letter	Major landowner in site; control Sunol's water.	Arthur H. Frye, Jr. (415) 558-3616
Alameda County Health Care Services Agency	17 Mar 75 Letter	Concerned about improving water quality in Study area.	Gill Stratton (415) 462-5775

# APPENDIX C

## Liaison with Other Federal and Non-Federal Agencies

Agency	Significant Date and Type of Contact	Purpose/ Comments	Point of Contact
<u>Regional &amp; Local</u> (Cont'd)			
City of Pleasanton	28 Feb 75 Meeting	Discussed Study objectives.	Bill Edgar (415) 846-3202
	11 Mar 75 Letter	Cited intention to cooperate.	
	15 Jul 75 Letter	Described consultant work on general plan; computerized environmental inventory.	Don R. Crawford (202) 582-1719
	3 Jul 75 Letter	Described ALV Sand & Gravel Study Committee.	
	13 Nov 75 Meeting	Mgt. Task Force.	Robert J. Harris (415) 846-3202
	12 May 76 Meeting	MTF Mtg.	
City of Livermore	1 Oct 74 Meeting	Orientation Briefing.	W.H. Parness (415) 447-2100
	11 Dec 74 Letter to Congress	Requested explanation of Corps involvement.	
	28 Feb 75 Meeting	Discussed objectives of Corps Study.	
	3 Aug 75 Letter	Urged limitation of Corps role to traditional flood control study.	
	13 Nov 75 Meeting	Mgt. Task Force.	
	12 May 76 Meeting	MTF Mtg.	





ALAMEDA CREEK, UPPER BASIN,  
CALIFORNIA, URBAN STUDY  
**WORK SEQUENCE DIAGRAM**

JUNE 1976

FIGURE 5







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